TABLE 2 ANALYSIS OF CROSS-CUTTING ISSUES

Issue Area	Description of Issue Area	Summary of Sub-Issues	Spatial Range				
			CB	GF	MB	R	N
1.0 Acoustics	A number of studies document impacts to living marine resources, including behavioral changes and physical effects due to exposure to anthropogenic noise and pressure waves in the marine environment. Anthropogenic sources of noise include: large commercial shipping traffic such as container ships, freighters, barges and tankers, recreational and commercial boats, military low frequency testing, research activities and aerial overflights. Marine mammals have been observed to deviate from their migration paths to avoid noise, or interrupt their communications in response to elevated noise levels. Certain anthropogenic noise is thought to mask sounds used for mating, feeding and avoiding predators. Responses vary depending on the acoustic frequency, decibel level, proximity to the source and other species-specific sensitivity factors. Concern about the cumulative impacts of noise from a variety of sources has grown as the ocean has become noisier in past half-century. However, long-term cumulative impacts are uncertain and range from minimal impacts in some situations to behavioral alterations to possible physiological or physical damage to hearing. The Sanctuaries have been involved in evaluating and requesting limits or alterations of specific proposals to use acoustic devices in the region, such as the Navy's recent Low-Frequency Array proposal, but has not addressed the overall issue of cumulative noise impacts	1.1 Restrict or prohibit all harmful sources of marine noise	✓	✓	✓	✓	
		1.2 Research / Survey existing and potential noise impacts, identify alternatives and mitigation.	✓	✓	✓	✓	
2.0 Administration	Administrative roles for governing each sanctuary are divided up between the Manager or Superintendent and the National Marine Sanctuary Program (NMSP). The NMSP provides oversight and coordination among the thirteen national marine sanctuaries, taking responsibility for ensuring each site's management plan is coordinated and consistent with the National Marine Sanctuary Act while developing a general budget and staffing for the site. The Sanctuary Manager or Superintendent is responsible for determining expenditures for program development, operating costs and staffing to meet the site's annual operating plan. The Manager or	2.1 All three sanctuaries need to increase coordination on key programs and resources threats	✓	✓	✓		
		2.2 1ncrease public responsiveness and accountability	✓	✓	✓		
		2.3 Increase funding for all sites	✓	✓	✓		

TABLE 2 ANALYSIS OF CROSS-CUTTING ISSUES

Issue Area	Description of Issue Area	Summary of Sub-Issues	Spatial Range				
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	staffing to meet the site's annual operating plan. The Manager or Superintendent and NMSP work together to monitor effectiveness of the management plan and to develop programs or policies that help meet resource management priorities Since its designation in 1989, CBNMS has grown from no full time staff or budget to a dedicated full time staff of three and a budget of $480,000. Since 1990, GFNMS staff has grown from one and a budget of just under $300,000 to a current staff of four with a budget of $975,000. Since 1992, the MBNMS staff has grown to 12 government employees and about 10 contractors; its budget has grown from about $450,000 in the first year to $2,750,000 in fiscal year 2002. Prior to 1998, the GFNMS had management responsibilities for the northern half of the MBNMS. Since then, most of the management duties for this region have shifted to the MBNMS, although certain management responsibilities are carried out through joint consultation.	***See also*** Section 5.0 Boundary Issues and Section 11.0 Enforcement which include sub-issues related to Administration.					
3.0 Aquaculture	NOAA defines aquaculture as, "The propagation and rearing of aquatic organisms in controlled or selected environments for any commercial, recreational, or public purpose." Aquaculture is used for bait production, wild stock enhancement, fish cultures for zoos and aquaria, rebuilding of populations of threatened and endangered species, and food production for human consumption. One of the concerns about aquaculture is the impact it has on water quality. Intensive cage, floating pen and other types of aquaculture systems discharge wastes directly to the aquatic environment. Ocean water circulatory systems used for pools and tanks often discharge pulses of highly concentrated waste discharges during cleaning and harvesting. Other concerns related to aquaculture activities may include: an elevated risk for eutrophication; disease and parasite introduction; accumulation of antibiotics; introduction of exotic species (including genetically altered); and escapement of hatchery stocks that may lead to interbreeding with native wild stocks altering genetic make-up.	3.1 Evaluate environmental impacts and if necessary, increase regulation.		✓	✓		
		3.2 Increase education regarding aquaculture and how facilities can reduce impacts.		✓	✓		
4.0 Biodiversity Protection and	The goals and objectives set forth by the National Marine Sanctuary Act (NMSA) direct each of the sanctuaries to take an ecosystem-based approach to managing these fluid marine environments that have great	4.1 Revised management plans and future actions must focus on primary goal of resource protection	✓	✓	✓		

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Ecosystem Conservation	temporal and spatial complexity, diversity and dimension. Through sanctuary partnerships, our experience has shown that the scientific community, resource agencies and the public have recognized the importance of an integrated ecosystem approach to management of the sanctuaries. Ecosystems include habitat structure, species assemblages and ecological processes, as well as humans and their use patterns. While upholding the main goal of resource protection, sanctuaries do allow for multiple use that is compatible with resource protection. Among other things, Management Plans set out to describe how human use activities will be addressed by the sanctuaries while improving the conservation, understanding, management and wise and sustainable use of marine resources. Many of the comments received during scoping reiterate the goals and objectives of the NMSA. Furthermore, comments directed the Sanctuary program to actively pursue protection of the ecosystem and enhance biodiversity through their management strategies, via strategies such as marine reserves, tidepool protection, eliminate fishing gear that damages habitat and boundary changes to better protect ecosystems	4.2 Management should focus on long term sustainability	✓	✓	✓		
		4.3 Protect biodiversity by Sanctuaries adopting more fully protected marine reserves throughout region.	✓	✓	✓	✓	
		4.4 Adopt marine reserves in Federal waters; participate with and advise CDFG in MLPA process.	✓	✓	✓		
		4.5 Need special protection of biodiversity at special places (e.g. Salinas River, kelp beds, Bolinas Lagoon).		✓	✓		
		4.6 Develop action plans specific to NMSP to help recover endangered species or key species at risk	✓	✓	✓		
		See also Section 5.0 Boundary Changes: many boundary changes were proposed to increase biodiversity protection					
5.0 Boundary Modifications	All three sites have boundaries that define the sanctuary itself, and where applicable, special use zones (like dredge disposal areas for MBNMS) within the sanctuary. These boundaries received extensive debate and analysis when the sites' were designated. Typically, a sanctuary's boundary is set to protect a defined ecosystem; human use zones either allow uses within a zone or prohibit them. Comments have arisen about the need to adjust boundaries for various reasons, and the management plan review process is the proper place to consider those. Reasons for boundary adjustments have included better protection of an ecosystem (Move MBNMS boundary further south), increased biodiversity protection (Include Davidson Seamount in MBNMS; Close "donut hole" off San	5.1 Consider moving the boundaries to better reflect socio-political and biological factors.	✓	✓	✓		
		5.2 Boundary of the CBNMS should be extended inward to the coastline.	✓	✓			
		5.3 Combine CB/GF/MB into one Sanctuary	✓	✓	✓	✓	
		5.4 Resolve "co-management" of the northern MBNMS; consider moving shared GF/MB boundary south		✓	✓		

TABLE 2 ANALYSIS OF CROSS-CUTTING ISSUES

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	Francisco), and administrative/operation reasons (Move shared GF/MBNMS boundary south; Create one national marine sanctuary instead of three). Some changes might reduce resource protection (Create buffer zones off urban areas) while others are beyond the initial intent of sanctuary designation, and possibly the NMSA (Move sanctuary boundaries into harbors and up watersheds).	5.5 Consider changing the boundary of the Sanctuary to include inland areas and watersheds.	✓	✓	✓		
6.0 Coastal Armoring	Development along the coast has increased the pressure to protect coastal structures with various types of coastal armoring (such as seawalls, bulkheads and revetments) to manage erosion. Approximately 14 miles of the MBNMS coastline is already armored, and this is estimated to double if trends continue at the current rate. Coastal armoring can damage or alter local coastal habitats, deprive beaches of sand, lead to accelerated erosion of adjacent beaches, and hinder recreational access. MBNMS has reviewed and authorized permits for seawalls, riprap or other coastal armoring projects at 16 sites since since its designation, issuing conditions primarily focused on minimizing impacts from the construction process rather than long-term impacts from the armoring itself. Only a fraction of the total number of coastal armoring projects underway in the region came to the Sanctuary for review. This past year MBNMS staff have initiated a joint evaluation of coastal armoring with the California Coastal Commission, with a goal of developing a more proactive, comprehensive regional approach to the issue.	6.0 Prohibit coastal armoring ("seawalls") in the GFNMS and MBNMS		✓	✓		
7.0 Coastal Development	The population of the greater San Francisco and Monterey Bay region numbers over 6 million and their populations are expected to keep increasing. Commercial and residential development is already concentrated around the Monterey Bay including the Monterey Peninsula, Marina, Watsonville and Santa Cruz, Half Moon Bay and north to San Francisco and Marin. Indirect affects of continued coastal development include increases in point (increased sewer use) and non point source pollution, nearshore habitat conversion to urbanized areas, as well as increased human presence at easily accessible points along the shoreline for the purposes of coastal recreation.	7.1 Sanctuary should take active role in promoting alternatives to development along coastline.		✓	✓		
		7.2 Minimize shoreline development along the sanctuary.		✓	✓		

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8.0 Community Outreach	CBNMS' outreach programs are directed at improving public awareness and understanding of the significance of the Sanctuary and the need to protect its resources. Public opportunities for direct interaction with Sanctuary resources are limited due the isolation of Cordell Bank, weather conditions and depth below the water surface. The goal of the Sanctuary's interpretive outreach programs is to reach three target audiences: 1) site visitor programs for fishing and whale watching excursions and other recreational visitors to the Sanctuary; 2) programs for those visiting the Sanctuary visitor centers; and 3) outreach programs for interested groups in the region. CBNMS also provides the public with information on the Sanctuary through fairs, school presentations, and lecture series. GFNMS, in cooperation with the Farallones Marine Sanctuary Association, sponsors events, interpretive trips and exhibits. FMSA and GFNMS have worked together in establishing visitor centers in Pacifica and San Francisco. Sanctuary outreach materials are also available at Golden Gate National Recreation Area and Bodega Marine Lab Communication and Outreach for the MBNMS currently centers around its four facilities. The main thrust remains in Monterey and Santa Cruz, but has recently expanded south to San Simeon and north to Half Moon Bay. Most events and news surrounding the Sanctuary is disseminated through the education staff located in each office. Limited programming at schools and the general public are available. MBNMS just completed a multi-cultural education plan, targeting the large Hispanic community in Monterey and Santa Cruz Counties. The plan is to have bilingual marine educators working with families in their community groups, at targeted State Beaches and Parks and with Hispanic serving teachers. The majority of current outreach is in the form of informal presentations and distributed print materials	8.1 Implement a nationwide outreach program	✓	✓	✓	✓	✓
		8.2 Increase marketing, media exposure and public awareness	✓	✓	✓	✓	
		8.3 Increase multicultural outreach for all three sanctuaries	✓	✓	✓	✓	
9.0 Cultural Resources	Submerged cultural resources include shipwrecks, aircraft, wharfs and dock sites, prehistoric archaeological sites and associated artifacts. For hundreds of years mariners transiting this region have been faced with prevailing	9.1 Recognize and help preserve traditional cultures, communities and activities within the sanctuary.	✓	✓	✓	✓	

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Issue Area	Description of Issue Area	Summary of Sub-Issues	Spatial Range				
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	winds, extreme weather conditions and natural hazards. Although there is not a complete inventory, remnants of hundreds of ships are believed to be off the coast, within Sanctuary waters. With the development of underwater technologies that bring the public virtually closer to the marine environment , there is increasing interest in submerged cultural resources. The continuing discovery, exploration, documentation and study of these resources provides a richer understanding of the region's maritime community and the larger ecosystem all three sanctuaries are protecting.	9.2 Develop and implement a research plan to identify submerged cultural resources, such as shipwrecks, and enforcement and education efforts to better protect them.	✓	✓	✓	✓	✓
10.0 Education	Education programs are designed to enhance public awareness and understanding of marine natural and cultural resources of the Sanctuary. Education is essential to achieving many of the Sanctuary's management objectives, and is an important component in promoting the Sanctuary's research and restoration projects. The Farallones Marine Sanctuary Association (FMSA) works collaboratively with GFNMS to implement various education, interpretation, and research programs. GFNMS in cooperation with FMSA, sponsors student summits, lectures, teacher training, summer camps and other education programs. FMSA is also supporting the development of a Coastal Ecosystem curriculum for high school students and multi-cultural programs with the San Francisco Dept. of Parks and Recreation and the California Coastal Commission.	10.1 Develop more targeted education as to how local communities and resource users can help protect sanctuary resources.	✓	✓	✓	✓	✓
		10.2 Use new technologies to bring offshore areas of the Sanctuary to the public.	✓	✓	✓	✓	✓
		10.3 Provide education program for local schools.	✓	✓	✓	✓	✓
11.0 Enforcement and Regulations	The purpose of Sanctuary enforcement is to ensure compliance with the National Marine Sanctuaries Act and appropriate regulations of the Sanctuary. Section 207 of the NMSA authorizes the Secretary of Commerce to conduct activities for carrying out the Act, delineates civil penalties and powers of authorized officers, and provides for recovery of penalties by the Secretary. Although GFNMS does not have an enforcement program of its own, it works together with the U.S, Coast Guard, National Marine Fisheries Service and Dept. of Fish and Game to enforce Sanctuary regulations. The Sanctuary also works directly with user groups to encourage compliance and best management practices. As an example, GFNMS has worked with CalTrans to stop the disposal of highway spoils along the Sanctuary shoreline. Sanctuary staff worked for more than 10 years with the City of Santa Rosa to prevent sewage discharge in the Sanctuary. As a result, the City's tertiary treatment system processes discharges that can be used to irrigate crops and recharge the aquifer for the Geyser electric generating facility.	11.1 All sanctuaries should have the same regulations and permit procedures	✓	✓	✓		✓

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12.0 Exotic / Introduced Species	Invasions by non-native species are increasingly common worldwide in coastal habitats. Estuaries, in particular, harbor large numbers of introduced species. For example, there are about 250 known invasive species in the San Francisco Bay and Delta, and many in Elkhorn Slough. Although the effects of many introduces aquatic species on habitats they colonize is unknown, some clearly have had serious negative influences. Impacts often include decreasing abundance and even local extinction of native species, alteration of habitat structure, and extensive economic costs due to biofouling. Probably the most important mechanism for the introduction of aquatic/marine species is transport in ship ballast tanks, though other mechanisms such as disposal of aquarium materials contribute to the issue. Eradication of introduced species is difficult, and management practices focus largely on prevention of introductions.	12.1 Prohibit disposal of ballast water in Sanctuaries to reduce threat of introduction.	✓	✓	✓		
		12.2 Develop and implement invasive species protection plan	✓	✓	✓		
13.0 Fishing & Kelp Harvesting	The California Department of Fish and Game (CDFG) regulates fisheries in State waters and, under the Marine Life Protection Act, is currently restructuring marine managed areas and establishing new ones. The Pacific Fisheries Management Council (PFMC) regulates fisheries in Federal waters and designates essential fish habitat as fisheries management tools. Fishing is a critical part of the regions culture and economy. Although some stocks appear healthy, fishery managers are concerned about declining stocks and habitat threats for other species, including many rockfish species, the live fish fishery, and anadramous species such as salmon and steelhead. The three sanctuaries do not currently manage any aspect of commercial or recreational fisheries. Kelp harvesting is also managed by the Department of Fish and Game although the appropriate level of kelp harvest remains an ongoing issue of interest in the MBNMS; kelp is not currently harvested in the CBNMS or GFNMS, rather only in the MBNMS. However, sea palms are harvested in the GFNMS.	13.1 Develop programs with fishing community to promote positive aspects of fishing, such as fish stocks that are sustainable.	✓	✓	✓	✓	
		13.2 Coordinate with NMFS in the coho salmon recovery plan and other fishery management plans.	✓	✓	✓	✓	✓
		13.3 Pursue fishing regulations only in Federal waters	✓	✓	✓		
		13.4 Define Sanctuary role in fisheries management	✓	✓	✓		
		13.5 Regulate shore fishermen separately from commercial and sport fishermen in regards to possible management and possible fishing closures.		✓	✓		

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	About 200 species of fish and invertebrates are harvested in the three sanctuaries. In CBNMS, commercial fisheries generally target rockfish, flatfish, salmonoids, groundfish and albacore tuna. Recreational fisheries generally focus on rockfish, lingcod, salmon and albacore tuna. Most of the private boats and charter vessels that fish CBNMS are from Bodega Bay. Rough ocean conditions often prevent smaller recreational boats from accessing CBNMS. Fishery gear types include: hook and line, long lines, bottom trawlers and mid-water trawlers. The California Department of Fish and Game (CDFG) regulates fisheries in State waters and, under the Marine Life Protection Act, is currently restructuring marine managed areas and establishing new ones. The Pacific Fisheries Management Council (PFMC) regulates fisheries in Federal waters and designates essential Fish habitat as fisheries management tools. CBNMS staff coordinates with these fisheries management agencies. During the management plan review process CBNMS staff will be evaluating the best tools for protection of living resources and habitats.	***See also Section 4.0 Biodiversity Protection and Ecosystem Conservation*** for marine reserve sub-issues. ***See also Sub-issue 14.1*** below regarding bottom trawling.					
14.0 Habitat Alteration	MBNMS and GFNMS have regulations that prohibit habitat alteration such as seabed disturbance (Cordell Bank does not have a seabed disturbance regulation only the taking of algae and invertebrates). Exceptions to this include fishing activities and normal anchoring. Habitat alteration can from construction activities or repeated activity such as bottom trawling or tidepool trampling. Habitat or environmental alteration can also occur as a form of restoration to a more natural state or by "improvements" such as artificial reefs. Placement of seawalls, rip rap, or other coastal armoring also alters the habitat however this issue is included in this summary as Issue 6.0. The impacts of activities that alter the habitat vary depending upon the action or duration of the activity. Sanctuaries received comments calling for stricter regulation or prohibition of fiber optic cables and	14.1 Ban or restrict bottom trawling in sanctuaries	✓	✓	✓		
		14.2 Ban or restrict construction of commercial submarine cables	✓	✓	✓		
		14.3 Altered coastal habitats should be restored to the natural state; remove non-native species and restore with indigenous flora and fauna .		✓	✓	✓	

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	calling for stricter regulation or prohibition of fiber optic cables and anchoring, regulation of coastal sand mining operations, and restrictions on bottom trawling. Other comments called for restoration activities, primarily in coastal wetlands that have been degraded by past human activity. Other specific comments called for placement of structures on the seafloor to propagate kelp for the purpose of harvesting or to act as habitat in order to mitigate for kelp harvesting activities.						
15.0 Marine Bioprospecting	Marine bioprospecting may include either sampling or continuous extraction of a living marine resource for commercial purposes. What differentiates marine bioprospecting from commercial fishing or kelp harvesting is the genetic value of the bioprospected material. Genetic material means any material of plant, animal, microbial or other origin containing genetic elements. Extraction for the purposes of marine bioprospecting may cause injury to Sanctuary resources, have impacts on biodiversity and/or interfere with the natural functional aspects of the ecosystem. The most common use of marine bioprospected materials to date is pharmaceuticals. Inquiries about collecting Sanctuary resources for biochemical analysis are an indication of the current expansion in this field. In the GFNMS, active harvesting of sponges, algae and shark cartilage for medicinal use and research is under way.	15.1 Regulate or prohibit marine bioprospecting in the sanctuaries.	✓	✓			
16.0 Marine Discharge and Debris	Marine deposits in the MBNMS include harbor dredged materials and landslide material related to maintenance and repair of coastal highways. MBNMS review the composition of the sediment and any associated contaminants and authorizes dredged material disposal at these sites for clean sediments of the appropriate grain size and amounts. Deposition of material from landslides along the Sanctuary's steep coastline can bury intertidal and subtidal habitat, and increase sand scour which inhibits larval settlement in certain habitats. Some of these slides occur naturally, while	16.1 Review Sanctuaries' role in permit process for dredge disposal to ensure efficiency of review and protection of Sanctuary resources		✓	✓		
		16.2 Develop marine debris reduction program	✓	✓	✓	✓	

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	settlement in certain habitats. Some of these slides occur naturally, while other slides are created or exacerbated by highway design, repair and maintenance practices. Sanctuary regulations currently prohibit these discharges The interagency review process for both dredging and landslide disposal is quite complicated, and improvements in coordination of the process have begun. Marine debris along the coastline includes litter and trash from the watersheds, beaches and boats which can harm marine life which may mistake them for prey or become entangled. Debris also reduces enjoyment of recreational use of the coastline. The Sanctuaries assists annually with Coastal Cleanup Day and has some urban runoff educational materials which mention debris, but has otherwise not focused heavily on this issue.						
17.0 Military Activities	The U.S. Navy and the U.S. Coast Guard regularly use the GFNMS for operations. U.S. Navy's third fleet conducts surface, air and submarine maneuvers. Just outside GFNMS to the north, there is a special submarine transit lane used primarily on approach to, and departure from, San	17.1 Sanctuaries should reduce or eliminate the impact from military experiments and activities, including pollution, sound, etc.	✓	✓	✓	✓	✓

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	Francisco Bay. The U.S. Navy's operations areas are located 8 nautical miles (nmi) southeast and 9 nmi northwest of the Farallon Islands. This submarine activity includes a trial diving exercise and various equipment checkouts normally following vessel refitting or overhauls. Approximately 10 nmi southwest of the Pt. Reyes Headlands, the U.S. Navy conducts both aircraft and surface vessel exercises, often coordinated with submarine operations. Submarine transit lanes run parallel to the mainland and due west of Bodega Headland and vary in width from 7 to 10 nmi. When activated, all other vessels in the vicinity are cautioned against towing submerged objects. The U.S. Coast Guard flies maintenance personnel to the lighthouse on Southeast Farallon Island for periodic servicing. They also conduct regular flights within the Sanctuary for enforcement and search and rescue missions. Military use of the MBNMS includes air, surface and underwater activity. Some activity includes the use of non explosive ordnance, sonar, smoke markers and the temporary placement of objects for torpedo firing or sonar location training. Air activities include aircraft carrier takeoffs and landing, and low-level air combat maneuvering. The U.S. Navy uses these areas for submarine operations. Navy minesweeping ships in Monterey Bay conduct mine hunting training eight times a year; each exercise lasts about one week. On occasion, U.S. Marines practiced amphibious landings on the beaches adjacent to this area. Concerns regarding the military activity in the MBNMS primarily relate to conflicts and disturbances to marine life, both temporary or long term. Acoustic issues such as the Navy's LFA Sonar are addressed in Section 1.0. Other concerns include the carrier launched jet aircraft and their impact on seabird roosting areas along the coast.						
18.0 Monitoring	Data derived from monitoring efforts provide an important tool in effective resource management at all three sanctuaries. Monitoring provides long-term information about the resources, often indicating trends, changes over time or cause and/or effect relationships. Ideally, good monitoring data will allow sanctuary management to discern natural variability in populations from adverse human-induced change, and work to reduce or eliminate the harmful human activities.	18.1 Establish long-term monitoring for intertidal areas.		✓	✓		
		18.2 Increase monitoring of Water Quality.	✓	✓	✓		
		18.3 Expand SIMoN to GFNMS and CBNMS and fully fund cirtical monitoring efforts.	✓	✓	✓	✓	

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	Over the past 20 years, the GFNMS has supported several seabird and marine mammal monitoring programs and is currently involved in several marine mammal monitoring programs, shoreline monitoring, intertidal monitoring, coastal ecology relationships monitoring, and restoration monitoring. Virtually the same is true for the MBNMS. In addition, the MBNMS has recently developed an integrated ecosystem monitoring program, SIMoN (Sanctuary Integrated Monitoring Network) to use existing data collected by regional scientists and to collect new data to better monitor the health of the sanctuary's ecosystem. CBNMS has initiated several monitoring projects to assess environmental changes as they occur including: monitoring harmful algal blooms; visual assessments of the Cordell Bank reef community; population assessments of blue and humpback whales; seabird surveys; and monitoring of biological, physical and chemical properties of the CBNMS.						
19.0 Motorized Personal Watercraft (MPWC)	MPWCs operate in a manner unique among recreational vehicles creating potentially significant impacts on wildlife, water quality and personal safety. The high speed and maneuverability of personal watercraft, and the fact they tend to operate nearshore and in a repeated fashion, within a confined area, results in recurring disturbance to animals and habitats. Suspected impacts include behavior modification of sea birds, fish and pinnipeds; and site abandonment and avoidance by certain porpoises and whales. In 2000, GFNMS prohibited use of MPWCs in the Sanctuary. MBNMS restricted use of these vehicles with the designation in 1992 and confined them to four zones outside of the four harbors in the Sanctuary. The MBNMS regulation includes a provision in the definition of a MPWC that states it has the capacity to carry not more than the operator and one other person while in operation. Since adoption of this regulation, certain MPWC manufacturers have designed vehicles that do not fall under the MBNMS definition. Specifically, certain MPWCs now are capable of carrying two, three or four people in addition to the operator and therefore are not subject to the MBNMS regulation. There have been conflicts between PWCs and other recreational ocean users due to the noise and operation of PWCs. Comments received during scoping include calling for a complete ban, adopting the GFNMS definition, using marine zones for buffering the impacts from wildlife, or well as removing regulations related to MPWCs.	19.1 Reassess environmental impacts from MPWC and recast regulations accordingly; ensure regulatory consistency at all three sanctuaries.	✓	✓	✓		
		19.2 Ban MPWCs entirely, except for genuine lifesaving duties	✓	✓	✓		

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20.0 Oil and Gas Exploration and Development	Oil and gas activity was one of the major reasons for designation of all three of the north/central California National Marine Sanctuaries. In the past 10 years, the State of California has adopted legal restrictions to prohibit new oil and gas leasing and development. Temporary moratoria have been in place in federal waters since 1982. The most current directive (June 1998, Clinton administration) under the OCS Lands Act prevents any leasing of new areas for oil and gas exploration and development through June 30, 2012. The OCS presidential deferrals do not restrict development of already leased Federal areas. There are 36 remaining undeveloped active OCS leases south of the MBNMS off the coast in San Luis Obispo and Santa Barbara counties.	20.1 Maintain prohibition on oil and gas exploration and development	✓	✓	✓		
21.0 Partnerships with Agencies	The NMSP is committed to coordinating with other Federal, State and local agencies on a continuous ecosystem management process. The process is designed to ensure the long-term protection of the unique resources of this region, while considering the demands of multi-use interests. As such, the management process requires that cooperation of many agencies and institutions that historically may not have focused on the same goals. Overlapping jurisdictions, different agency mandates and limited resources necessitate the development of a relationship that brings together multiple agencies for the common purpose of ecosystem management. Achieving the long and short-term goals of the Sanctuary Program requires close and continuing partnerships among all agencies.	21.1 Work with other local, state and federal agencies having shared resource management authorities and responsibilities.	✓	✓	✓	✓	✓
		21.2 Coordinate with coastal planning agencies to reduce marine impacts from coastal development issues.	✓	✓	✓	✓	✓
22.0 Partnerships with Community Groups	The Sanctuaries could not function in the many roles they undertake without the support of community partnerships. For instance, the MBNMS Sanctuary Advisory Council (SAC) is comprised of 40 agency and user group representatives as well as the public at large. Its advice is critical to	22.1 Develop regional partnership program to capitalize on shared interests with tourism industry, and with regional NGOs.	✓	✓	✓	✓	

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	understanding the needs of the local communities while protecting the Sanctuary's resources. The SAC relies on an additional 80 individuals on 4 working groups for the best information regarding Research, Education, Conservation, Business and Tourism. Each of these groups is comprised of representatives, who volunteer their time to help develop the Sanctuary's programs, products and viewpoints. 30 Hispanic serving institutions worked with MBNMS staff to develop the multicultural education plan. Partnerships with State and Regional Parks and private nonprofit groups have greatly enhanced the MBNMS's ability to share its mission. The GFNMS is similar in its success due via support from many non-governmental organizations. The Farallones Marine Sanctuary Association provides volunteers and funding for many important sanctuary activities and programs.						
23.0 Radioactive Waste	No Cross Cutting Comments See analysis of Gulf of the Farallones NMS Issues						
24.0 Research	The opportunities for marine research within the Sanctuaries are abundant, as seen by past research studies that have provided important baseline information about the area. The diversity of habitat types and communities provides a wealth of opportunities for conducting a variety of research programs. Studies on the processes at the land-sea interface are also feasible due to the accessibility of extensive coastline. Finally, the marine research institutions within the area provide an exceptional resource to draw upon in furthering our understanding, and thus the management of, the Sanctuary's marine resources. Research is necessary to understand how the Sanctuary ecosystem functions and how humans impact it. This can be accomplished by improving our understanding of the Sanctuary environment, resources and qualities, resolving specific management problems, and coordinating and facilitating information flow between the various research institutions, agencies and organizations in the area. Research results can be used for making management decisions about resource protection and to develop and improve education programs for visitors and others interested in the Sanctuary.	24.1 Coordinate research activities among all three sites concerning sanctuary resources.	✓	✓	✓	✓	
		24.2 Need research on water quality impacts from San Francisco Bay industrial point sources	✓	✓	✓		

TABLE 2 ANALYSIS OF CROSS-CUTTING ISSUES

Issue Area	Description of Issue Area	Summary of Sub-Issues	Spatial Range				
			CB	GF	MB	R	N
25.0 Sanctuary Advisory Councils	No Cross Cutting Comments See analysis of Monterey Bay NMS Issues						
26.0 Spill Response and Contingency Planning	Emergency response within the Sanctuary ranges from small events associated with fuel and oil discharges, debris and habitat damage from vessel groundings, sinkings and plane crashes, to larger oil spills from offshore shipping traffic, sunken vessels or natural seeps where damages can span hundreds of miles of coastline. The most severe oil spill impacts would result from large, acute spills usually associated will oil well blowouts, or in the case of this sanctuary, tanker accidents. Oil spills could have a major impact on foraging birds including the fouling of feathers, reducing flying and swimming ability, loss of buoyancy and thermal insulation. Preening birds can ingest oil leading to death, reproductive failure, unviable eggs or the transfer of oil to chicks. Pinnipeds may experience loss of buoyancy and thermal insulation from coming into contact with oil. Impacts on cetaceans from oil spills include contact with eyes or skin, fouling of baleens and ingestion or inhalation. Oil spill impacts on fish and benthic fauna may include reproductive failure and disruption in larval development. Additionally, oil residue may impact habitats throughout the water column, benthic habitats, kelp forests, rocky reefs and sandy beaches.	26.1 Stage adequate oil spill response supplies in Bodgea Bay, not just SF Bay.	✓	✓	✓		
		26.2 Develop an oil spill contingency plan that applies to all three sanctuaries	✓	✓	✓	✓	
		26.3 Develop a Sanctuaries policy for use of oil spill dispersants	✓	✓	✓	✓	✓

TABLE 2 ANALYSIS OF CROSS-CUTTING ISSUES

Issue Area	Description of Issue Area	Summary of Sub-Issues	Spatial Range				
			CB	GF	MB	R	N
27.0 User Conflicts	All three Sanctuaries are located near some of California's most urbanized areas and have experienced an increase in the number of users. Users have put increasing demands on the resources through commercial and recreational fishing, wildlife viewing, boating, tourism, research interests and educational opportunities. Because the area is large and includes adjacent rural and urban areas, management must be responsive and equipped to deal with a broad range of concerns. One tool National Marine Sanctuaries use to address user conflicts is through zoning. Zoning may be used to avoid concentration of uses that could result in significant impacts on marine resources; to reduce conflict between users; provide opportunities for scientific research; and/or to provide for the recovery of resources from degradation or other injury attributable to human uses. Other tools to address user conflicts include: the promulgation of regulations restricting activities that are harmful and the development of voluntary rules for interaction with Sanctuary resources such as wildlife viewing guidelines.	27.1 Sanctuary should not limit access to resources or recreational opportunities. Provide more public access to the Sanctuary.	✓	✓	✓		
28.0 Vessel Traffic	The diverse resources in the Sanctuaries are particularly sensitive to the impacts of spilled oil or other hazardous materials. The Sanctuaries are also located in an area of active maritime commerce, which is a major component of the regional and national economy. Vessel traffic was a major issue of concern raised during the Sanctuary designation and concerns continue today. The historical record of spills for the Pacific Coast indicates that the total number of spills from transiting vessels is relatively small in number, but the potential impacts can be enormous given the number and volume of these vessels and the potential size of a spill. Due to the high volume of large commercial vessel traffic and the risks and consequences of spills, vessel traffic was a major issue during the MBNMS designation in 1992. NOAA and the Coast Guard used a collaborative "key stakeholder" process to develop recommendations, much of which were approved internationally, to move shipping lanes 12 to 20 miles offshore, and keep most tanker traffic out of the Sanctuary. Individuals commented on this issue during scoping with recommendations to move the vessel traffic lanes further offshore and thereby further reduce the threat potential.	28.1 Move tanker traffic further offshore, outside of Sanctuaries.	✓	✓	✓		

TABLE 2 ANALYSIS OF CROSS-CUTTING ISSUES

Issue Area	Description of Issue Area	Summary of Sub-Issues	Spatial Range				
			CB	GF	MB	R	N
29.0 Water Quality	**Nonpoint Source Pollution** Coastal watersheds immediately adjacent to the three sanctuaries cover over 10,000 square miles of land with a mix of land uses including major urban areas, rural communities, agricultural land, and pockets of industrial areas. As rainfall or irrigation water in these watersheds moves downstream, it picks up a variety of contaminants. Offshore areas of the Sanctuaries are in relatively good condition, but nearshore coastal areas, harbors, lagoons, estuaries and tributaries show a number of problems including elevated levels of coliform bacteria, detergents, oils, nitrates, sediments, and persistent pesticides such as DDT and toxaphene. These contaminants can have a variety of biological impacts including bioaccumulation, reduced recruitment of anadramous species, algal blooms, transfer of human pathogens and interference with recreational uses of the sanctuary due to beach closures. In addition, recent problems such as recurring beach closures which are in part due to nonpoint sources of coliform pollution have not yet been adequately addressed in the urban runoff and water quality monitoring efforts. **Point Source Pollution** Point sources of pollution are those in which a single discharge point is evident, and they include sewage spills and discharges, desalination plants, and industrial discharges such as power plants. Sewage spills have become more frequent in recent years, in part due to cracks and clogging of aging pipelines beneath many of the region's cities and small communities. These spills, along with nonpoint sources of coliform, have contributed to more frequent beach closures which reduce recreational use. Pathogens from sewage have also been implicated in sea otter diseases and mortality patterns. In addition, there are currently 15 desalination plants that are existing or in some stage of planning within MBNMS, with an increasing trend towards the development of small independent plants for private developments. Discharges from these plants have potential impacts due to elevated salinity and metal levels, toxic contaminants associated with cleaning and maintenance, and construction impacts from pipelines	29.1 Collaborate with local, state and federal management agencies to address impacts from point and non-point source pollution.	✓	✓	✓	✓	✓
		29.2 Prohibit private desalination facilities		✓	✓		
		29.3 Address pollution from municipal sewage system outfalls.		✓	✓		
		29.4 Establish a water quality pollution monitoring program through all three sanctuaries	✓	✓	✓		
		29.5 Monitor and address pollution from SF Bay.	✓	✓	✓	✓	

TABLE 2 ANALYSIS OF CROSS-CUTTING ISSUES

Issue Area	Description of Issue Area	Summary of Sub-Issues	Spatial Range				
			CB	GF	MB	R	N
30.0 Wildlife Disturbance	The Sanctuaries provide many opportunities for observation of nature, including whale watching, bird watching and pinniped pupping and haulout activity. Party boats are used for nature observation tours. Rocky shorelines provide pedestrians opportunities to view the flora and fauna associated with the habitat. With the multitude of opportunities for observation comes the potential for wildlife disturbance which may result in flushing birds from their nesting sites, pinnipeds abandoning pups, potential harassment or even death. Previously in the MBNMS ecotourism operations included white shark viewing with the aid of chumming and other attraction methods. MBNMS has adopted prohibitions for white shark attraction. These activities do occur in the GFNMS or CBNMS, however no regulations for these activities exist.	30.1 Develop responsible wildlife viewing standards for various user groups (kayakers, hikers, boaters, divers, etc.).	✓	✓	✓	✓	✓
		30.2 Adopt regulations that limit or prohibit “chumming” for great white sharks; keep regulations consistent between sanctuaries.	✓	✓	✓	✓	
		30.3 Develop action plan, and possibly new regulations, to better protect sanctuary tidepool wildlife from trampling and collection activities.		✓	✓		

TABLE 3: Analysis of Cordell Bank National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
1.0 Acoustic Impacts	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
2.0 Administration	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
3.0 Aquaculture	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
4.0 Biodiversity Protection & Ecosystem Conservation	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
5.0 Boundary Modifications	All three sites have boundaries that are defined by their terms of designation. The boundary delineates the spatial extent of each sanctuary. During the designation process, a range of boundary options are proposed, and often modified based on public and agency input before there is a final determination on the boundary. Typically, sanctuary boundaries are designed to protect areas of special significance such as a distinct ecosystem, and address human uses. The management plan review process provides an opportunity to re-examine, evaluate, and, as appropriate, redefine a sanctuary's boundary.	5.1 Boundary of the Sanctuary should be extended north and inwards toward the coast.
6.0 Coastal Armoring	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
7.0 Coastal Development	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
8.0 Community Outreach	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
9.0 Cultural Resources	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
10.0 Education	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
11.0 Enforcement & Regulations	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
12.0 Exotic/ Introduced	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.

TABLE 3: Analysis of Cordell Bank National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
Species		
13.0 Fishing	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
14.0 Habitat Alteration	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
15.0 Marine Bioprospecting	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
16.0 Marine Debris & Discharge	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
17.0 Military Activities	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
18.0 Monitoring	Data derived from monitoring efforts provide an important tool in effective resource management. Monitoring provides short- and long-term information about the resources. This information may indicate trends, changes over time, or cause-and-effect relationships. CBNMS has initiated several monitoring projects to assess environmental changes as they occur including: monitoring harmful algal blooms; visual assessments of the Cordell Bank reef community; population assessments of blue and humpback whales; seabird surveys; and monitoring of biological, physical and chemical properties of the CBNMS.	18.1 Expand Monterey Bay NMS's Sanctuary Integrated Monitoring Network (SIMoN) program to Cordell Bank.
19.0 Motorized Personal Watercraft (MPWC)	MPWCs operate in a manner unique among recreational vehicles creating potential impacts on wildlife, water quality and the quality of a person's experience. The high speed and maneuverability of personal watercraft, and the fact they tend to operate nearshore and in a repeated fashion, within a confined area, results in recurring disturbance to animals and habitats. Suspected impacts include behavior modification of sea birds, fish and pinnipeds; and site abandonment and avoidance by certain porpoises and whales. The National Marine Sanctuary Program has regulated MPWC in both the Monterey Bay and Gulf of the Farallones National Marine Sanctuaries. The Monterey Bay National Marine Sanctuary restricted use of these vehicles with the designation in 1992 and confined their use to four zones outside of the four harbors in the Sanctuary. That regulation defined MPWC to mean any motorized vessel that is less than 15 feet in length, is capable of exceeding speeds of 15 knots, and has the capacity to carry not more than the operator and one other person while in operation. Since adoption of this regulation, certain MPWC manufacturers have designed vehicles that do not fall under the MBNMS definition. Specifically, certain MPWCs now are capable of carrying two, three or four people in addition to the operator and therefore are not subject to the MBNMS regulation. There have been conflicts between MPWCs and other recreational ocean users due to the noise and operation of MPWCs. On Sept. 10, 2001, the	19.1 MPWC should be banned from Cordell Bank NMS and Bodega Bay.

TABLE 3: Analysis of Cordell Bank National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
	Gulf of the Farallones NMS published a final rule prohibiting MPWC throughout the entire sanctuary except for emergency search and rescue and for law enforcement purposes. Currently there is no regulation pertaining to MPWC for Cordell Bank NMS.	
20.0 Oil/Gas Development & Exploration	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
21.0 Partnerships w/ Agencies	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
22.0 Partnerships w/ Community Groups	CBNMS has a staff of 4 1/2 and a budget of $480,000. Community partnerships provide a useful, economical and efficient means of project implementation.	22.1 Provide more opportunities to work with volunteers and other community partners
23.0 Radioactive Waste	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
24.0 Research	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
25.0 Sanctuary Advisory Council	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
26.0 Spill Response & Contingency Planning	The Sanctuary participates in emergency response and contingency planning for oil spills, hazardous material spills, grounded vessels or natural disasters. The plan is based on the Incident Command System and U.S. Coast Guard's Area Contingency Plan and seeks to initiate a seamless operation in cooperation with various Federal, State and local emergency response agencies in California. The most severe oil spill impacts would result from large, acute spills usually associated will oil well blowouts, or in the case of this sanctuary, tanker accidents. Oil spills could have a major impact on foraging birds including the fouling of feathers, reducing flying and swimming ability, loss of buoyancy and thermal insulation. Preening birds can ingest oil leading to death, reproductive failure, unviable eggs or the transfer of oil to chicks. Pinnipeds may experience loss of buoyancy and thermal insulation from coming into contact with oil. Impacts on cetaceans from oil spills include contact with eyes or skin, fouling of baleens and ingestion or inhalation. Oil spill impacts on fish and benthic fauna may include reproductive failure and disruption in larval development. Additionally, oil residue may impact habitats throughout the water column, benthic habitats, kelp forests, rocky reefs and sandy beaches.	26.1 Ensure there is an updated contingency plan to respond to oil and hazardous material spills.
27.0 User Conflicts	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.

TABLE 3: Analysis of Cordell Bank National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
28.0 Vessel Traffic	The Sanctuary is home to an extraordinarily diverse array of marine mammals, sea birds, fishes and invertebrates, including many species that are particularly sensitive to the impacts of spilled oil or other hazardous materials. The Sanctuary is also located in an area of critical importance to the conduct of maritime commerce, which is a major component of the regional and national economy. Vessel traffic within the Sanctuary was a major issue of concern raised during the Sanctuary designation process and continues today. The historical record of spills for the Pacific Coast indicates that the total number of spills from transiting vessels is relatively small in number, but the potential impacts can be enormous given the number and volume of these vessels and the potential size of a spill.	28.1 Provide more safeguards to reduce incidences of vessel oil spills or discharges in or near Cordell Bank.
29.0 Water Quality	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.
30. 0 Wildlife Disturbance	No Comments specific to CBNMS. See Analysis of Cross-Cutting Issues Table.	No Comments specific to CBNMS.

TABLE 4: Analysis of Gulf of the Farallones National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
1.0 Acoustic Impacts	No comments specific to GFNMS. See Analysis of Cross-Cutting Issues Table.	No comments specific to GFNMS.
2.0 Administration	No comments specific to GFNMS. See Analysis of Cross-Cutting Issues Table.	No comments specific to GFNMS.
3.0 Aquaculture	NOAA defines aquaculture/mariculture as, "The propagation and rearing of aquatic and/or marine organisms in controlled or selected environments for any commercial, recreational, or public purpose." Aquaculture is used for bait production, wild stock enhancement, fish cultures for zoos and aquaria, rebuilding of populations of threatened and endangered species, and human food production. One of the concerns about aquaculture is the impact it has on water quality. Intensive cage, floating pen and other types of aquaculture systems discharge wastes directly to the aquatic environment. Ocean water circulatory systems, used for pools and tanks, often discharge pulses of highly concentrated waste discharges during cleaning and harvesting. Other concerns related to aquaculture activities may include: an elevated risk for eutrophication; accumulation of antibiotics; and disease, parasite, and exotic species introduction (including genetically altered). Escapement of hatchery stocks may lead to interbreeding with native wild stocks altering genetic make-up. In GFNMS, oysters and scallops are grown on tracts of tidelands in Tomales Bay leased from the State Lands Commission and regulated by CDFG.	3.1 Regulate the operation of aquaculture/mariculture facilities in the Sanctuary, particularly as it relates to water quality discharges. 3.2 Prohibit aquaculture facilities from discharging harmful pathogens or introducing non-native species.
4.0 Biodiversity Protection & Ecosystem Conservation	The goals and objectives set forth by the National Marine Sanctuary Act (NMSA) direct each of the Sanctuaries to take an ecosystem-based approach to managing marine environments that have temporal and spatial complexity, diversity and dimension. Through Sanctuary partnerships, experience has shown that the scientific community, resource agencies and the public have recognized the importance of an integrated ecosystem approach to sanctuary management. Ecosystems include habitat structure, species assemblages and ecological processes. While upholding our highest goal of resource protection, Sanctuaries do allow for multiple uses that are compatible with resource protection. Management Plans set out how human use activities will be addressed by the Sanctuaries while improving the conservation, understanding, management and sustainable use of marine resources.	4.1 Need better integration of land use planning adjacent to the estuaries 4.2 Land around Esteros should remain zoned for agriculture. 4.3 Increase protection of sanctuary habitats and natural resources, particularly in intertidal areas 4.4 Sanctuary should evaluate watershed/upland uses and how they impact the marine environment (agriculture, vineyards, forestry/logging, waste management). 4.5 Sanctuary should recognize the good land stewardship practices by ranchers and farmers.
5.0 Boundary Modifications	All three sites have boundaries that are defined by their terms of designation. The boundary delineates the spatial extent of each sanctuary. During the designation process, a range of boundary options are proposed, and often modified based on public and agency input before there is a final determination on the boundary. Typically, sanctuary boundaries are designed to protect areas of special significance such as a distinct ecosystem, and address human uses. The management plan review process provides an opportunity to re-examine, evaluate, and, as appropriate, redefine a sanctuary's boundary.	5.1 Move the GFNMS southern boundary to Ano Nuevo or the San Mateo County Line. 5.2 Move the GFNMS southern boundary south to include Marin County. 5.3 Extend the boundary into San Francisco Bay and the Sacramento River. 5.4 Extend the boundary north into Sonoma County.
6.0 Coastal Armoring	No comments specific to GFNMS. See Analysis of Cross-Cutting Issues Table.	No comments specific to GFNMS.

TABLE 4: Analysis of Gulf of the Farallones National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
7.0 Coastal Development	No comments specific to GFNMS. See Analysis of Cross-Cutting Issues Table.	No comments specific to GFNMS.
8.0 Community Outreach	Outreach programs are intended to reach a broader audience than focused education programs. Outreach programs complement educational efforts in achieving many of the Sanctuary's management objectives. GFNMS, in cooperation with the Farallones Marine Sanctuary Association, sponsors events, interpretive trips and exhibits. FMSA and GFNMS have worked together in establishing visitor centers in Pacifica and San Francisco. Sanctuary outreach materials are also available at Golden Gate National Recreation Area, Point Reyes National Seashore, and Bodega Marine Lab.	8.1 Expand community lecture series and make it more accessible to the public. 8.2 Continue existing sanctuary volunteer programs. 8.3 Sanctuary should work with the Steinhart Aquarium on outreach activities.
9.0 Cultural Resources	No comments specific to GFNMS. See Analysis of Cross-Cutting Issues Table.	No comments specific to GFNMS.
10.0 Education	Education programs are designed to enhance public awareness and understanding of marine natural and cultural resources of the Sanctuary. Education is essential to achieving many of the Sanctuary's management objectives, and is an important component in promoting the Sanctuary's research and restoration projects. The Farallones Marine Sanctuary Association (FMSA) works collaboratively with GFNMS to implement various education, interpretation, and research programs. GFNMS in cooperation with FMSA, sponsors student summits, lectures, teacher training, summer camps and other education programs. FMSA is also supporting the development of a Coastal Ecosystem curriculum for high school students and multi-cultural programs with the San Francisco Dept. of Parks and Recreation and the California Coastal Commission.	10.1 Continue and expand volunteer programs such as BEACH Watch. 10.2 Establish an outreach program with the agriculture industry in Sonoma County. 10.3 Inform users and landowners about the Sanctuary and its regulations
11.0 Enforcement and Regulations	The purpose of Sanctuary enforcement is to ensure compliance with the National Marine Sanctuaries Act and appropriate regulations of the Sanctuary. Section 207 of the NMSA authorizes the Secretary of Commerce to conduct activities for carrying out the Act, delineates civil penalties and powers of authorized officers, and provides for recovery of penalties by the Secretary. Although GFNMS does not have an enforcement program of its own, it works together with the U.S, Coast Guard, National Marine Fisheries Service and Dept. of Fish and Game to enforce Sanctuary regulations. The Sanctuary also works directly with user groups to encourage compliance and best management practices. As an example, GFNMS has worked with CalTrans to stop the disposal of highway spoils along the Sanctuary shoreline. Sanctuary staff worked for more than 10 years with the City of Santa Rosa to prevent sewage discharge in the Sanctuary. As a result, the City's tertiary treatment system processes discharges that can be used to irrigate crops and recharge the aquifer for the Geyser electric generating facility.	11.1 Enforce existing regulations, particularly the new jet ski regulation. 11.2 Acquire a dedicated Sanctuary enforcement officer.
12.0 Exotic /	Exotic species in the marine environment can be defined as a plant, invertebrate, fish, amphibian, bird, reptile or mammal whose natural zoogeographic range would not have	12.1 Prohibit those activities that could result in the introduction of non-native disease and species.

TABLE 4: Analysis of Gulf of the Farallones National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
Introduced Species	included the waters of the Eastern Pacific without passive or active introduction to the area through anthropogenic means. San Francisco Bay is considered to be one of the most invaded aquatic ecosystems in North America with more than 200 introduced species. Exotic species in the marine environment threaten the diversity and/or abundance of native marine species and human recreational and commercial activities. Common sources of introduction of exotic species include ballast water and disposal of aquaria materials. Prevention of exotic species introduction is proving to be more effective than eradication of exotic species.	12.2 Limit the spread of non-native oysters in Tomales Bay by commercial culture operations.
13.0 Fishing & Kelp Harvesting	King salmon and rockfish are the primary sport fishing targets. The most important commercial harvests include salmon, rockfish, flatfish, albacore tuna and Dungeness crab. Most of the commercial catches harvested in GFNMS are landed in San Francisco, Bodega Bay, Oakland, Half Moon Bay, and Sausalito. Clam digging is a popular activity for gaper, Washington, and littleneck clams. The tidal community includes a wide diversity of invertebrates such as barnacles, limpets, black turban snails, mussels, sea anemones and urchins that may be harvested as well. Gear types used in GFNMS include: sceines, round haulnets, gillnets, trammel nets, hook and line, long lines, bottom trawlers and mid-water trawlers. The California Department of Fish and Game (CDFG) regulates fisheries in State waters and, under the Marine Life Protection Act, is currently restructuring marine managed areas. The Pacific Fisheries Management Council (PFMC) regulates fisheries in Federal waters and designates Essential Fish Habitat as a fisheries management tool. GFNMS staff coordinates with these agencies. During the management plan review process GFNMS staff will be evaluating the best tools for protection of living resources and habitats.	13.1 Ensure the fish and invertebrates are not overfished or depleted (i.e., salmon, rockfish, geoducks, horse neck clams, abalone).
14.0 Habitat Alteration	Human alteration of the environment includes any modification from the natural state. Types of alteration include the laying fiber optic cables or placement of other objects like artificial reefs on the seabed. Alteration can occur from repeated activity such as bottom trawling or tidepool trampling, Habitat alteration can have either negative or positive impacts depending upon the nature of the activity (i.e., habitat destruction or creation). Placement of seawalls, riprap, or other coastal armoring also alters the habitat however this issue is included in this summary as a coastal armoring issue. Many land based human actions may also directly alter the habitat in the Sanctuaries, however these specific actions were categorized under the coastal development issue. The impacts of activities that alter the habitat vary depending upon the action or duration of the activity.	14.1 Sanctuary should determine, and if necessary regulate, the impacts from upstream land use practices (forestry, agriculture, development) on sanctuary resources. 14.2 Protect tidepool habitats from trampling and collection. 14.3 Establish a mooring buoy system for vessels at various anchorage locations. 14.4 Explore opportunities to use wrecks and other artificial reefs to enhance sanctuary resources.
15.0 Marine Bioprospecting	No comments specific to GFNMS. See Analysis of Cross-Cutting Issues Table.	No comments specific to GFNMS.

TABLE 4: Analysis of Gulf of the Farallones National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
16.0 Marine Debris and Discharge	Marine debris and discharge originates from both land-based and at-sea sources. Due to the proximity to San Francisco Bay, the Sanctuary has been thought of as a convenient location to dump dredge spoils. The Sanctuary has worked closely with the Port of Oakland, U.S. Army Corps of Engineers and U. S. EPA to identify appropriate locations outside of the Sanctuary for clean dredge material disposal. The Sanctuary worked with the City of Santa Rosa to find alternatives for sewage disposal that included using tertiary treatment system to process discharges to be used to irrigate crops. The Sanctuary has also worked with partners such as the Pt. Reyes National Seashore to identify sources of land-based discharges such as mercury from abandoned mines. With more than 58 coastal access points to the Sanctuary and three major shipping lanes converging on San Francisco Bay, discharges from vessel traffic and associated activities is a major concern that us partially addressed by Sanctuary regulations.	16.1 Organize clean-up events for coastal areas and beaches.
17.0 Military Activities	The U.S. Navy and U.S. Coast Guard (non-military) regularly use the GFNMS for operations. U.S. Navy's third fleet conducts surface, air and submarine maneuvers. Just outside GFNMS to the north, there is a special submarine transit lane used primarily on approach to, and departure from, San Francisco Bay. The U.S. Navy's operations areas are located 8 nautical miles (nmi) southeast and 9 nmi northwest of the Farallon Islands. This submarine activity includes a trial diving exercise and various equipment checkouts normally following vessel refitting or overhauls. Approximately 10 nmi southwest of the Pt. Reyes Headlands, the U.S. Navy conducts aircraft and surface vessel exercises, often coordinated with submarine operations. Submarine transit lanes run parallel to the mainland and due west of Bodega Headland and vary in width from 7 to 10 nmi. When activated, all other vessels in the vicinity are cautioned against towing submerged objects. The U.S. Coast Guard flies maintenance personnel to the lighthouse on Southeast Farallon Island for periodic servicing. They also conduct regular flights within the Sanctuary for enforcement and search and rescue missions.	17.1 Sanctuary should reduce or eliminate the impact of pollution (including sound) from military experiments and activities.
18.0 Monitoring	Data derived from monitoring efforts provide an important tool in effective resource management. Monitoring provides short- and long-term information about the resources. This information may indicate trends, changes over time, or cause and/or effect relationships. Over the past 20 years, the GFNMS has supported several seabird and marine mammal monitoring programs. These include the investigation of pollutants in breeding seabirds and Steller sea lions, and surveys of the number and distribution of pinnipeds, harbor porpoises, and humpback, gray, blue and minke whales. Currently, GFNMS is involved in several marine mammal monitoring programs, shoreline monitoring, intertidal monitoring, coastal ecology relationships monitoring, and restoration monitoring.	18.1 Determine the status of and continually monitor red abalone in Bodega Bay. 18.2 Monitor sea lion populations. 18.3 Increase monitoring efforts to determine impacts of the radioactive waste disposal site. 18.4 Monitor water quality for presence and impacts of pollutants. 18.5 Monitor impacts of shark chumming on sharks and other prey populations. 18.6 Expand the MBNMS's Sanctuary Integrated Monitoring Network (SIMoN) to GFNMS.

TABLE 4: Analysis of Gulf of the Farallones National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
19.0 Motorized Personal Watercraft (MPWC)	PWCs operate in a manner unique among recreational vehicles creating potentially significant impacts on wildlife, water quality and personal safety. The high speed and maneuverability of personal watercraft, and the fact they tend to operate nearshore and in a repeated fashion, within a confined area, results in recurring disturbance to animals and habitats. Studies have shown that the use of PWCs in nearshore areas can increase flushing rates, reduce nesting success of certain bird species, have impacts on spawning fish, and reduce fishing success. Coastal nests can be flooded by wakes of the vehicles, which can also cause shoreline erosion, and increased turbidity via shallow-water sediment resuspension. Offshore, marine mammals or surfacing birds may be unaware of the presence of the vehicles due to the low frequency sound, combined with the vehicles' high speed, and rapid and unpredictable movements, putting animals and operators at risk. Suspected impacts include behavior modification of sea birds, fish and pinnipeds; and site abandonment and avoidance by certain porpoises and whales. A majority of PWCs have two-stroke engines that release 10% to 50% more pollutants into the water column than other vessels with 4-stroke engines. On Sept. 10, 2001, the Gulf of the Farallones NMS published a final rule prohibiting MPWC throughout the entire sanctuary except for emergency search and rescue and for law enforcement purposes.	19.1 Expand the sanctuary boundary north to prohibit jet skis off Sonoma County.
20.0 Oil and Gas Exploration and Development	Oil and gas activity was one of the major reasons for designation of all five of the West Coast National Marine Sanctuaries. In 1989, the State Lands Commission administratively foreclosed the possibility of new oil and gas leasing in California State coastal waters. This administrative Sanctuary was incorporated through the California Coastal Sanctuary Act of 1994. Pursuant to that statute, all State coastal waters, except those under lease on January 1, 1995, are permanently protected from development. No portion of the Federal OCS has a permanent moratorium on oil and gas leasing and development except some of the waters within National Marine Sanctuaries (by regulation or statute). A temporary moratorium has been in place since 1982. The most current directive (June 1998, Clinton administration), under the OCS Lands Act, prevents any leasing of new areas for oil and gas exploration and development through June 30, 2012. The OCS presidential deferrals can be reversed by subsequent administrations and do not restrict development of already leased Federal areas. There are 79 remaining active OCS leases, all off the coast of central and southern California in San Luis Obispo, Santa Barbara, Ventura and Los Angeles counties. There are no active leases in or adjacent to GFNMS, CBNMS or MBNMS. A concern about activities related to oil and gas development is the impacts on marine resources from oil spills.	20.1 Permanently prohibit petroleum and natural gas exploration, development, or production with the sanctuaries or in areas with the potential to impact the Farallon Islands.
21.0 Partnerships with Agencies	GFNMS and the NMSP are committed to coordinating with other Federal, State and local agencies on a continuous ecosystem management process. The process is designed to ensure the long-term protection of the unique resources of this region. As such, the management	21.1 Coordinate with Coast Guard and Navy and other aviators during the breeding season to minimize disturbance at the Farallon Islands.

TABLE 4: Analysis of Gulf of the Farallones National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
	process requires the cooperation of many agencies and institutions that historically may have different goals. Overlapping jurisdictions, different agency mandates and limited resources necessitate the development of a relationship that brings together multiple agencies for the common purpose of ecosystem management. Achieving the long and short-term GFNMS goals requires close and continuing partnerships among all agencies. The GFNMS borders are adjacent to, or overlap areas under the authority of several different agencies. GFNMS partners with/ and or shares management responsibilities with ten Federal agencies, twelve State, and many local agencies and not for profit organizations.	21.2 Collaborate with local, state and federal management agencies to address impacts from development and non-point source pollution.
22.0 Partnerships with Community Groups	As an individual site, GFNMS has limited staff and financial resources. Without the support of community partnerships, GFNMS could not carry out its current level of day-to-day operations. Community partnerships provide a useful and efficient means of project implementation. Community partnerships include five research and educational institutions, over 450 Beach Watch, SEALS, and other volunteers, 14 non-governmental organizations, and the Farallones Marine Sanctuary Association (FMSA). FMSA, a not for profit organization, works collaboratively with GFNMS to implement various education, interpretation, outreach and research programs.	22.1 Explore opportunities to work with the Surfrider Foundation on coastal water quality monitoring.
		22.2 Expand efforts to involve volunteer organizations and community groups in sanctuary management.
23.0 Radioactive Waste	From 1946 to 1970, a variety of U.S. government agencies and private research institutions legally dumped more than 50,000 55-gallon drums containing low, high and undetermined levels of radioactivity. Working with the U.S. Geological Survey, U.S. Navy and the U.S. Environmental Protection Agency, GFNMS has conducted limited exploratory testing of substrates and groundfish in the dumpsites.	23.1 Determine status of barrels containing radioactive waste and assess potential impacts of contamination.
		23.2 Develop a clean-up plan for the Farallones radioactive dumpsite and implement it.
		23.3 Disseminate more information about the effects of radiation on fish, the fishing industry, and humans.
		23.4 Prohibit bottom trawling in vicinity of radioactive waste site.
24.0 Research	The diversity of physical and biological habitats throughout the Gulf of the Farallones offers an outstanding opportunity for scientific research on marine and estuarine ecosystems. Marine research activities focus on Intertidal flora, seabirds, and marine mammals. On the mainland, numerous bays and headlands offer prime locations for ecological studies of coastal ecosystems. The Areas of Special Biological Significance around the Farallon Islands, Point Reyes Headlands, Duxbury Reef, Double Point, Bird Rock and Bodega Marine Life Refuge all contain unique resources warranting protection for educational and scientific use. Most research in the GFNMS is carried out by investigators associated with Universities, CDFG, NPS or PRBO	24.1 Complete joint tax inventory of Sanctuary with Point Reyes National Seashore.
		24.2 Conduct research on white sharks, including the effects of chumming.
		24.3 Determine the sources and impacts of pollution on sanctuary wildlife (include SF Bay).
		24.4 Coordinate and disseminate information about research activities in the Sanctuary.
		24.5 Encourage and provide support for research in the sanctuary
25.0 Sanctuary Advisory Council	No comments specific to GFNMS. See Analysis of Cross-Cutting Issues Table.	No comments specific to GFNMS.

TABLE 4: Analysis of Gulf of the Farallones National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
26.0 Spill Response and Contingency Planning	No comments specific to GFNMS. See Analysis of Cross-Cutting Issues Table.	No comments specific to GFNMS.
27.0 User Conflicts	All three Sanctuaries are located near some of California's most urbanized areas and have experienced an increase in the number of users. Users have put increasing demands on the resources through commercial and recreational fishing, wildlife viewing, boating, tourism, research and education. Because the area is large and includes adjacent rural and urban areas, management must be responsive and equipped to deal with a broad range of concerns. National Marine Sanctuaries may address user conflicts via zonal management. Zoning may be used to: avoid concentration of uses that could result in significant impacts on marine resources; reduce conflict between users; provide opportunities for scientific research; and/or to provide for the recovery of resource degradation.	27.1 Determine whether too many users are negatively impacting sanctuary resources. 27.2 Ensure the Sanctuary users (kayakers and hikers) do not impact wildlife on nearby private lands and ranches. 27.3 Prohibit "extreme" sports from occurring in the Sanctuary. 27.4 Resolve conflict between shark researchers and shark wildlife watching operators. 27.5 Determine whether there is a need to regulate the number of kayakers and boaters in Tomales Bay.
28.0 Vessel Traffic	The Sanctuary is home to an extraordinarily diverse array of marine mammals, sea birds, fishes and invertebrates, including many species that are particularly sensitive to the impacts of spilled oil or other hazardous materials. The Sanctuary is also located in an area of critical importance to the conduct of maritime commerce, which is a major component of the regional and national economy. Vessel traffic within the Sanctuary was a major issue of concern raised during the Sanctuary designation process and continues today. The historical record of spills for the Pacific Coast indicates that the total number of spills from transiting vessels is relatively small in number, but the potential impacts can be enormous given the number and volume of these vessels and the potential size of a spill.	28.1 Safety should be considered in the westbound lane for ships, fishing vessels, and all watercraft. 28.2 Evaluate the need to require tug escorts in other sensitive coastal areas.
29.0 Water Quality	Oceanic water quality along the northern California coast generally ranges from very good to high, except in areas adjacent to population centers. The Sanctuary works with Federal and State agencies to monitor near-shore and estuarine areas of the Sanctuary for pollutant, oxygen, and nutrient levels, and algal blooms. Of special concern are the estuarine habitats of Bolinas Lagoon, Tomales Bay, Estero Americano, and Estero de San Antonio. The watersheds of these areas are subject to runoff from agriculatural, livestock grazing, improperly treated effluent,dumping, historic mining and development. These pollutants affect the biological, recreational, economic, and aesthetic resources of the Sanctuary. Since 1970, there have been regular reports of birds with oil on them at the Farllon Islands. The sanctuary's shoreline monitoring program, BEACH Watch, and the State's Office of Spill Prevention and Response, have shown that hydrocarbons found on bird feathers and in tarball samples are not from local sources. This suggests that vessels cleaning tanks or discharging their bilges prior to entering the bay are primary source of chronic oil pollution.	29.1 Develop a plan for addressing polluted runoff from agriculture and forestry lands. 29.2 Develop a plan for addressing polluted runoff from urbanized and developed areas (homes, streets, storm drains, etc.). 29.3 Improve water quality in the Estero de San Antonio 29.4 Regulate the dumping of pollutants into Americano Creek 29.5 Eliminate sewage discharges in the Sanctuary 29.6 Focus water quality protection efforts within local watersheds 29.7 Expand BEACH Watch to include a water quality monitoring component.

TABLE 4: Analysis of Gulf of the Farallones National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
		29.8 Provide incentives to farmers (and other non-point source pollutions sources) to improve the quality of runoff into the Sanctuary.
30.0 Wildlife Disturbance	The Sanctuaries provide many opportunities for observation of nature, including whale watching, bird watching, and pinniped pupping and haulout activity. Party boats are used for nature observation tours. Rocky shorelines provide pedestrians opportunities to view the flora and fauna associated with the habitat. With the multitude of opportunities for observation comes the potential for wildlife disturbance which may result in flushing birds from their nesting sites, pinnipeds abandoning pups, potential harassment or even death. Previously in the MBNMS ecotourism operations included white shark viewing with the aid of chumming and other attraction methods. MBNMS has adopted prohibitions for white shark attraction. These activities do occur in the GFNMS or CBNMS, however no regulations for these activities exist.	30.1 Prohibit shark chumming activities for the purpose of wildlife viewing (consistent with the existing MBNMS regulations).
		30.2 Regulate shark ecotourism by establishing a limited entry permit system.
		30.3 Investigate the impacts of overflight on wildlife.
		30.4 Evaluate the impacts of wildlife disturbance from too many people viewing or recreating nearby.
		30.5 Protect tidepools from overuse by limiting the number of people.

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
1.0 Acoustic Impacts	A number of studies document impacts to living marine resources, including behavioral changes and physical effects due to exposure to anthropogenic noise and pressure waves in the marine environment. Anthropogenic sources of noise include: large commercial shipping traffic such as container ships, freighters, barges and tankers, recreational and commercial boats, military low frequency testing, research activities and aerial overflights. Marine mammals have been observed to deviate from their migration paths to avoid noise, or interrupt their communications in response to elevated noise levels. Certain anthropogenic noise is thought to mask sounds used for mating, feeding and avoiding predators. Responses vary depending on the acoustic frequency, decibel level, proximity to the source and other species-specific sensitivity factors. Concern about the cumulative impacts of noise from a variety of sources has grown as the ocean has become noisier in past half-century. However, long-term cumulative impacts are uncertain and range from minimal impacts in some situations to behavioral alterations to possible physiological or physical damage to hearing. The MBNMS has been involved in evaluating and requesting limits or alterations of specific proposals to use acoustic devices in the region, such as the Navy's recent Low-Frequency Array proposal, but has not addressed the overall issue of cumulative noise impacts.	1.1 Restrict harmful sources of marine noise 1.2 Ban LFA within MBNMS
2.0 Administration	Administrative roles for governing the MBNMS are led by the MBNMS Superintendent, with direction and support from the National Marine Sanctuary Program (NMSP). The NMSP provides oversight and coordination among the thirteen national marine sanctuaries, taking responsibility for ensuring each site's management plan is coordinated and consistent with the National Marine Sanctuaries Act while developing a general budget and staffing for the site. The MBNMS Superintendent is responsible for determining expenditures for program development, operating costs and staffing to meet the site's annual operating plan. Annually, based on Congressional appropriations, the NMSP reviews and adjusts funding priorities and requirements with the Superintendent to reflect resource management needs. The Superintendent and NMSP work together to monitor effectiveness of the management plan and to develop programs or policies that help meet resource management priorities. Since 1992, the MBNMS staff has grown to 12 government employees and about 10 contractors; its budget has grown from about $450,000 in the first year to $2,750,000 in fiscal year 2002. Prior to 1998, the GFNMS had shared management responsibilities for the northern half of the MBNMS. Since then, most of the management duties for this region have shifted to the MBNMS, although certain management responsibilities are carried out through joint consultation.	2.1 Pursue additional resources to implement all programs 2.2 MBNMS should increase role in conflict resolution among agencies and public 2.3 Need increased presence (office, resources) outside of Monterey Peninsula (north, south, inland) 2.4 Increase public responsiveness and accountability
3.0 Aquaculture	Currently six aquaculture companies operate within the MBNMS, culturing species such as abalone, algae, steelhead, salmon, and shrimp. NOAA defines aquaculture as, "The propagation and rearing of aquatic	3.1 Increase regulation and education on aquaculture.

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
	organisms in controlled or selected environments for any commercial, recreational, or public purpose." Aquaculture is used for bait production, wild stock enhancement, fish cultures for zoos and aquaria, rebuilding of populations of threatened and endangered species, and food production for human consumption. One of the concerns about aquaculture is the impact it has on water quality. Other concerns related to aquaculture activities may include: an elevated risk for eutrophication; disease and parasite introduction; accumulation of antibiotics; introduction of exotic species and escapement of hatchery stocks that may lead to interbreeding with native wild stocks altering genetic make-up	3.2 Increase education regarding aquaculture and how facilities can reduce impacts.
4.0 Biodiversity Protection and Ecosystem Conservation	The goals and objectives set forth by the National Marine Sanctuary Act (NMSA) direct each of the sanctuaries to take an ecosystem-based approach to managing these fluid marine environments that have great temporal and spatial complexity, diversity and dimension. Through sanctuary partnerships, our experience has shown that the scientific community, resource agencies and the public have recognized the importance of an integrated ecosystem approach to management of the sanctuaries. Ecosystems include habitat structure, species assemblages and ecological processes, as well as humans and their use patterns. While upholding the main goal of resource protection, sanctuaries do allow for multiple use that is compatible with resource protection. Among other things, Management Plans set out to describe how human use activities will be addressed by the sanctuaries while improving the conservation, understanding, management and wise and sustainable use of marine resources. Many of the comments received during scoping reiterate the goals and objectives of the NMSA. About 7,000 comments were received that directed the MBNMS to actively pursue protection of the ecosystem and enhance biodiversity through management strategies, such as marine reserves, tidepool protection, eliminate fishing gear that damages habitat and boundary changes to better protect ecosystems. Over 1,000 individuals signed a petition stating that any action towards marine reserves must involve affected parties like fishermen and must rely on regulatory authority of other agencies, like Fish and Game and NMFS/PFMC. Clearly this subissue received the most comments during the scoping process.	4.1 Produce one management plan for each ecosystem, not by agency.
		4.2 Revised management plan and future actions must focus on primary goal of resource protection.
		4.3 Management should focus on long term sustainability.
		4.4 Protect biodiversity by MBNMS adopting more fully protected areas, marine reserves, throughout Sanctuary.
		4.5 Adopt marine reserves in Federal waters; participate with and advise Cal Fish and Game in MLPA process.
		4.6 Advise and partner with CDFG and PFMC on marine reserves these agencies adopt
		4.7 Better protection of high use intertidal areas like Pt. Pinos
		4.8 Need special protection of biodiversity at special places – Salinas River, Pillar Point, all kelp beds.

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
		4.9 Develop MBNMS specific action plans to help recover endangered species, or key species at risk.
		4.10 Evaluate extent of bycatch in local fisheries; consider further restrictions by fisheries agencies or MBNMS to protect ecosystem function.
		4.11 Evaluate effects to kelp forest community from nearshore (live fish) fishery; consider further restrictions by fisheries agencies or MBNMS to protect ecosystem function.
		4.12 Explore methods of balancing protected species populations affecting other protected populations (i.e. pinnipeds and anadramous fish)
		See also 5.0 Boundary Modifications: many boundary changes were proposed to increase biodiversity protection.
5.0 Boundary Modifications	All three sites have boundaries that define the sanctuary itself, and where applicable, special use zones (like dredge disposal areas for MBNMS) within the sanctuary. These boundaries received extensive debate and analysis when the sites' were designated. Typically, a sanctuary's boundary is set to protect a defined ecosystem; human use zones either allow uses within a zone or prohibit them. Comments have arisen about the need to adjust boundaries for various reasons, and the management plan review process is the proper place to consider those. Reasons for boundary adjustments have included better protection of an ecosystem (Move MBNMS boundary further south), increased biodiversity protection (Include Davidson Seamount in MBNMS; Close "donut hole" off San Francisco), and administrative/operation reasons (Move shared GF/MBNMS boundary south; Create one national marine sanctuary instead of three). Some changes might reduce resource protection (Create buffer zones off urban areas) while others are beyond the initial intent of sanctuary designation, and possibly the NMSA (Move sanctuary boundaries into harbors and up watersheds).	5.1 Move MBNMS boundary south.
		5.2 Include Davidson Seamount in MBNMS; include all offshore seamounts in MBNMS.
		5.3 Move Sanctuary boundaries inside harbors.
		5.4 Close 'Donut Hole' off San Francisco and Pacifica.
		5.5 Include Santa Cruz City area into MBNMS.
		5.6 Adopt buffer zones around harbors.

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
6.0 Coastal Armoring	Development along the coast has increased the pressure to protect coastal structures with various types of coastal armoring such as seawalls, bulkheads and revetments to manage erosion. Approximately 14 miles of the coastline is already armored in the MBNMS, and this is estimated to double if trends continue at the current rate. Coastal armoring can damage or alter local coastal habitats, deprive beaches of sand, lead to accelerated erosion of adjacent beaches, and hinder recreational access. MBNMS has reviewed and authorized Coastal Commission permits for seawalls, riprap or other coastal armoring projects at 16 sites since its designation. Conditions imposed primarily focused on minimizing impacts from the construction process rather than long-term impacts from the armoring itself. Only a portion of the total number of coastal armoring projects underway in the region came to the Sanctuary for review. This past year staff has initiated a joint evaluation of coastal armoring with the California Coastal Commission, with a goal of developing a more proactive, comprehensive regional approach to the issue.	6.1 Prohibit armoring ("seawalls") in the Sanctuary. 6.2 Work with Coastal Commission to reduce emergency permitting and enact Sanctuary armoring policy which avoids sensitive areas. 6.3 Increase beach nourishment projects.
7.0 Coastal Development	It is predicted that the major population centers near all three sanctuaries will continue to grow steadily. Commercial and residential development is concentrated around the Monterey Bay including the Monterey Peninsula, Marina, Watsonville and Santa Cruz, as well as Half Moon Bay and north to San Francisco and Marin. With increases in development, additional pressures will come to install structures both to access the ocean and to protect property from the ocean. These include infrastructure associated with harbors, breakwaters, and jetties as well as forms of coastal armoring. Indirect effects of continued coastal development include increases in point source (increased sewer use) and non point source pollution as well as increased human presence at easily accessible points along the shoreline for the purposes of coastal recreation. Coastal development is typically controlled by local governments and the California Coastal Commission. Because coastal development can harm the marine environment, public comments asked the MBNMS, and to a lesser extent GFNMS, to influence such activity along their shorelines.	7.1 Sanctuaries should take active role in reducing impacts of population growth. 7.2 Restrict all development surrounding coastal wetlands 7.3 Preserve Big Sur area in its existing state
8.0 Community Outreach	Communication and outreach for the MBNMS currently centers around its four facilities. The main thrust remains in Monterey and Santa Cruz, but has recently expanded south to San Simeon and north to Half Moon Bay. Most events and news surrounding the Sanctuary is disseminated through the education staff located in each office. Limited programming at schools and the general public are available. MBNMS just completed a multicultural education plan, targeting the large Hispanic community in Monterey and Santa Cruz Counties. The plan is to have bilingual marine educators working with families in their community groups, at targeted State Beaches and Parks and with Hispanic serving teachers. The majority of current outreach is in the form of informal presentations and distributed print materials. Many suggestions were raised during scoping regarding the need for increased outreach on many resource issues, the direction of outreach, as well as methods of outreach. Some general themes are captured in the subissues, however, please refer to Appendix 1 for specific comments and suggestions	8.1 Build a visitor center and regional interpretive centers. 8.2 Increase marketing, media exposure and public awareness. 8.3 Increase outreach to inland areas. 8.4 Increase multicultural outreach efforts. 8.5 Increase availability of materials at other visitor centers.

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
9.0 Cultural Resources	Submerged cultural resources include shipwrecks, aircraft, wharfs and dock sites, prehistoric archaeological sites and associated artifacts. For hundreds of years mariners transiting this region have been faced with prevailing winds, extreme weather conditions and natural hazards. Although there is not a complete inventory, remnants of hundreds of ships are believed to be off the coast, within Sanctuary waters. With the development of underwater technologies that bring the public virtually closer to the marine environment, there is increasing interest in submerged cultural resources. The continuing discovery, exploration, documentation and study of these resources provides a richer understanding of the region's maritime community and the larger ecosystem.	9.1 Fully haracterize and protect cultural resources in MBNMS.
10.0 Education	MBNMS programming is designed to promote stewardship of the Sanctuary's natural and cultural marine resources while interpreting the issues affecting the MBNMS and the research being conducted. This is done through a broad array of symposia, student ocean conferences, workshops, print materials, signage, and public events. Programs and priorities are reviewed by the Sanctuary's Education Panel, a consortium educators from over 20 regional marine education/interpretation facilities. Current programming falls into one of three categories: resource issue education, general public education and teacher/student programming. During the scoping process, many people commented about the need for more education regarding the many resource protection issues affecting the sanctuary such as: natural processes, tidepool collection or trampling, population growth, impacts of dogs, resource protection issues, water pollution, regulated activities, fossil fuel use, aircraft overflight, positive aspects of fishing, fishing regulations, marine debris, and wildlife interaction.	10.1 Coordinate education, communication and outreach programs to reach strategic audiences for priority issues. 10.2 Increase multicultural education programs. 10.3 MBNMS should support special programs such as SeaLab Monterey Bay and Ocean Science Bowl. 10.4 Develop plan to better use volunteers and interpretive panels/ kiosks to increase public education. 10.5 More education articles in media (newspapers, public television). 10.6 Expand Team Ocean kayak program 10.7 Develop and implement a regional education plan . 10.8 Build and equip effective education team.
11.0 Enforcement of Regulations	The most common reported violations in the MBNMS are jetskis operating outside their designated zones, unlawful discharges from boats or land, and disturbance of marine mammals and seabirds from planes, recreational vessels, fishermen, and the general public. MBNMS enforcement capabilities have increased in the past two years with the addition of an enforcement investigation officer dedicated to the MBNMS. However, MBNMS field presence from a single officer is still quite limited due to the broad expanse of coastline and marine waters necessary to cover with very limited staff hours and vessel capabilities. Training and cross-deputizing CDFG wardens and CDPR rangers to also enforce Sanctuary regulations, as their time and staffing allows, have leveraged enforcement presence. Promotion of voluntary compliance	11.1Utilize existing enforcement agencies. 11.2 Reduce enforcement, focus on data collection and education 11.3 Increase enforcement of existing regulations.

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
	their time and staffing allows, have leveraged enforcement presence. Promotion of voluntary compliance is the first alternative for many types of Sanctuary violations, and has led to the establishment of effective programs to reduce harassment of elephant seals at Piedras Blancas and kayaker-sea otter interactions off Cannery Row. For those violations best dealt with by more traditional approaches, MBNMS has the authority to assess fines of up to $109,000 per day of violation.	11.4 Develop voluntary compliance programs. 11.5 Conduct more coastal patrols and obtain more "eyes" for the sanctuary. 11.6 Institute an appeal process for MBNMS permits 11.7 Streamline permitting process and assist in expediting multi-agency permits. 11.8 Modify regulations so MBNMS does not have to issue permits; rely on other agency permits only. 11.9 Print regulations in other languages. 11.10 Need a tracking system for violations and enforcement action. 11.11 Improve getting enforcement actions to prosecution.
12.0 Exotic / Introduced Species	Invasions by non-native aquatic species are increasingly common worldwide in coastal habitats. Estuaries, in particular, harbor large numbers of introduced species. For example, there are about 250 known invasive species in the San Francisco Bay and Delta, and 55 invasive invertebrates in the Elkhorn Slough. Although the effects of many introduces aquatic species on habitats they colonize is unknown, some clearly have had serious negative influences. Impacts often include decreasing abundance and even local extinction of native species, alteration of habitat structure, and extensive economic costs due to biofouling. Probably the most important mechanism for the introduction of aquatic species is transport in ship ballast tanks, though other mechanisms such as disposal of aquarium materials, aquaculture operations, bait and seafood packing, and research operations contribute to the issue. Eradication of introduced species is difficult, and management practices focus largely on prevention of introductions.	12.1 Prohibit disposal of ballast water to reduce threat of introduction 12.2 Develop and implement introduced species prevention plan. 12.3Assess species introduction pathway and how to mitigate impacts.
13.0 Fishing / Kelp Harvesting	Fishing is a critical part of the region's culture and economy, with about 1,000 commercial vessels fishing in the region annually, along with substantial recreational fishing. About 200 species are typically caught in the commercial and recreational fisheries, with the bulk of the commercial landings composed of squid, rockfishes, salmon, albacore, Dover sole, sablefish, mackerel, anchovy, and sardines. The five primary	13.1 Further refine language in Management Plan / EIS to describe MBNMS role in fishery management

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
	gear types used are pots and traps, trawl nets, hook-and-line gear, purse seines, and gill nets. Although some local stocks appear healthy, fishery managers are concerned about declining stocks and habitat threats for other species. MBNMS does not currently manage any aspect of commercial or recreational fisheries. The FEIS indicates that MBNMS should conduct research on harvested species and their ecological status, and use that advise and advocate with fishery management agencies. The FEIS did not envision a regulatory role for the MBNMS on fishing issues; if ecological problems arose , it was to consult with state and federal fishery agencies, and fishing industry, for regulatory or other solutions. The public has expressed concern about effects of fishing and certain gear types on MBNMS resources, habitats and ecosystems, while many fishermen have indicated they do not want MBNMS to regulate fisheries. Current involvement of MBNMS in issues related to fishing include conducting fisheries-related research, sponsoring educational events, occasionally commenting to other agencies on fishery issues, and, during the past year, working collaboratively with a Fishermen's Alliance committee established to evaluate the potential for marine reserves. Kelp harvesting is also managed by the Department of Fish and Game although the appropriate level of kelp harvest remains an ongoing issue of interest in the MBNMS; In 2001, the Fish and Game Commission adopted a kelp harvesting plan for the Monterey Bay National Marine Sanctuary.	13.2 Abide by existing language in designation documents and FEIS to limit role on fishing 13.3 Focus efforts on activities that affect fishing (runoff, oil pollution) 13.4 Pursue fishing regulations only in Federal waters 13.5 Need further restriction of kelp harvesting in MBNMS 13.6 Construct artificial reef for kelp harvesting or as mitigation for kelp harvesting 13.7 Install artificial reefs to increase rockfish populations 13.8 Develop programs with fishing community to promote positive aspects of fishing, such as fish stocks that are sustainable ***See also 3.0 Biodiversity Protection, and 14.0 Habitat Alteration***
14.0 Habitat Alteration	All three sanctuaries have regulations that prohibit habitat alteration such as seabed disturbance. Exceptions to this include fishing activities and normal anchoring. Habitat alteration can result from construction activities or repeated activity such as bottom trawling or tidepool trampling. Habitat or environmental alteration can also occur as a form of restoration to a more natural state or by "engineered habitat such as artificial reefs. Placement of seawalls, rip rap, or other coastal armoring also alters the habitat however this issue is included in this summary as Issue 6.0, Coastal Armoring. The impacts of activities that alter the habitat vary depending upon the action or duration of the activity. Sanctuaries received comments calling for stricter regulation or prohibition of fiber optic cables, regulation of coastal sand mining operations, and restrictions on bottom trawling. Many comments also called for restoration activities, primarily in coastal wetlands that have been degraded by past human activity. Other specific comments called for placement of structures on the seafloor to propagate kelp for the purpose of harvesting or to act as habitat in order to mitigate for kelp harvesting activities.	14.1 Ban or restrict construction of commercial submarine cables 14.2 Evaluate effects to benthic habitat from trawling; consider further restrictions by fishery agencies or MBNMS to protect habitat. 14.3 Restrict sand mining along shores of or in MBNMS 14.4 Increase riparian and wetland restoration amd salmonid watershed habitat 14.5 Investigate coastal erosion caused by coastal development

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
		See also 6.0 Coastal Armoring
15,0 Marine Bioprospecting	No Comments specific to MBNMS See Analysis of Crosscutting Issues	
16.0 Marine Discharge and Debris	Discharge or material in the Sanctuary include harbor dredged materials and landslide material related to maintenance and repair of coastal highways. When the Sanctuary was designated in 1992, two existing offshore sites for dredge disposal were identified, and the establishment of new sites was prohibited within its boundaries. Since then, MBNMS has recognized and authorized the use of additional sites at Santa Cruz and Monterey Harbors which were in use prior to designation. MBNMS reviews the composition of the sediment and any associated contaminants and authorizes dredged material disposal at these sites for clean sediments of the appropriate grain size and amounts. Deposition of material from landslides along the Sanctuary's steep coastline can bury intertidal and subtidal habitat, and increase sand scour which inhibits larval settlement in certain habitats. Some of these slides occur naturally, while other slides are created or exacerbated by highway design, repair and maintenance practices. Sanctuary regulations currently prohibit these discharges. MBNMS is working with Caltrans and others to address this issue, including development of a regional plan to improve highway practices to reduce the need for disposal, and assessments of the relative contribution of natural versus anthropogenic material. A proposal has also been developed to evaluate the sensitivity of various locations and habitats along the coast to deposition, with the goal of identifying appropriate and inappropriate circumstances for disposal adjacent to the ocean. The interagency review process for both dredging and landslide disposal is quite complicated, and improvements in coordination of the process have begun. MBNMS also reviews NPDES permit issuance and renewals for point source discharges such as treated sewage. Growing "discharge" issues in central California also include new desalination facilities. Marine debris along the MBNMS coastline includes litter and trash from the watersheds, beaches and boats which can harm marine life which may mistake them for prey or become entangled. Other marine deposits include oil slicks from bilge pumping, groundings, cargo holds, and sunken vessels. Debris also reduces enjoyment of recreational use of the coastline. MBNMS assists annually with Coastal Cleanup Day and has some urban runoff educational materials which mention debris, but has otherwise not focused heavily on this issue.	16.1 Review and improve MBNMS role in permit process for dredge disposal to ensure efficiency of review and protection of sanctuary resources. 16.2 Identify disposal locations and conditions for landslide disposal. 16.3 Develop Big Sur landslide / Cal Trans spoils disposal policy. 16.4 Develop debris and trash education and reduction program ***See also 14.0 Habitat Alteration, 18.0 Monitoring, and 29.0 Water Quality***
17.0 Military Activities	Military use of the MBNMS includes air, surface and underwater activity. Some activity includes the use of non explosive ordnance, sonar, smoke markers and the temporary placement of objects for torpedo firing or sonar location training. Air activities include aircraft carrier takeoffs and landing, and low-level air combat maneuvering. The U.S. Navy uses these areas for submarine operations. Navy minesweeping ships in Monterey Bay conduct mine hunting training eight times a year; each exercise lasts about one week. On occasion, U.S. Marines practiced amphibious landings on the beaches adjacent to this area	17.1 Prohibit non-emergency military overflights 17.2 Exempt military use 17.3 Prohibit use of LFA sonar in Sanctuaries

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
	week. On occasion, U.S. Marines practiced amphibious landings on the beaches adjacent to this area. Concerns regarding the military activity in the Sanctuary primarily related to conflicts and disturbances with marine life both temporary or long term. Acoustic issues such as the Navy's LFA Sonar are addressed in Section 1.0. The military also conducts non-combat preparedness activities such as underwater cable repair and breakwater maintenance. Other concerns include the carrier launched jet aircraft and their impact on seabird roosting areas along the coast.	***See Also 1.0 Acoustics and 14.0 Habitat Alteration***
18.0 Monitoring	Reports of events such as beach closings, oils spills, harmful algal blooms, exotic species introductions, and habitat losses appear to be increasing in frequency worldwide, and it is now well documented that many marine environments are deteriorating significantly. However, the anthropogenic and natural causes of these changes to habitats and resources are complex and varied, commonly occurring on different temporal and spatial scales. Effective resource management is therefore reliant on integrated approaches to identify and track changes to important and sensitive marine environments. Comprehensive, long-term monitoring, a requirement of the original MBNMS management plan, is a fundamental element of resource management. It has been recognized in numerous reviews and studies that coordinated, standardized approaches to monitoring are essential to effectively determine temporal and spatial trends. However, despite the substantial efforts by private and government organizations, monitoring programs are typically incomplete, inconsistent, fragmented and inaccessible. This is commonly a result of insufficient infrastructure and funding to achieve a comprehensive, long-term perspective. To assure the effective and continuous evaluation of a region and its resources, particularly large areas on the scale of the Monterey Bay National Marine Sanctuary, a commitment towards a stable network of flexible ecosystem and issue-based monitoring programs is needed. With the support of many partners, the MBNMS has recently initiated a Sanctuary Integrated Monitoring Network (SIMoN) to try and address this critical need. The Sanctuary recently established the Citizen Watershed Monitoring Network with volunteers to fill in gaps in monitoring by state and local agencies.	18.1 NOAA needs to fully fund SIMoN. 18.2 Increase monitoring of special point sources like Duke Moss Landing Plant and sewage overflow. 18.3 Increase monitoring and expand Sanctuary Citizen Watershed Monitoring Network 18.4 Employ others, like fisherman and volunteers to help monitor resources 18.5 Use / expand Team Ocean to monitor for nearshore activity ***See Also Sec. 24.0 Research***
19.0 Motorized Personal Watercraft	MPWCs operate in a manner unique among recreational vehicles creating potentially significant impacts on wildlife, water quality and personal safety. The high speed and maneuverability of personal watercraft, and the fact they tend to operate nearshore and in a repeated fashion, within a confined area, results in recurring disturbance to animals and habitats. Suspected impacts include behavior modification of sea birds, fish and pinnipeds; and site abandonment and avoidance by certain porpoises and whales. The Monterey Bay National Marine Sanctuary restricted use of these vehicles with the designation in 1992 and confined them to four zones outside of the four harbors in the Sanctuary. The MBNMS regulation includes a provision that defines a MPWC. Since adoption of this regulation, most MPWC manufacturers have designed vehicles that do not fall under the MBNMS definition. Specifically, certain MPWCs now are capable of carrying two, three or four people in addition to the operator and therefore are not subject to the MBNMS regulation. There have been conflicts between MPWCs and other recreational ocean users due to the noise and operation of MPWCs. Comments received during scoping include calling for a complete ban, adopting the GFNMS definition, using marine zones for buffering the impacts from wildlife, or well as removing regulations related to MPWCs. Some comments regarding MPWC also distinguished between two-stroke and four-stroke motors. These issues also are a concern for noise impacts and water quality.	19.1 Reassess environmental impacts from MPWC and recast regulations accordingly 19.2 Ban MPWC entirely, except for genuine lifesaving duties 19.3 Close loopholes on definition of larger MPWC in MBNMS 19.4 Need additional enforcement of MPWC prohibitions 19.5 Make buoy system safer for marking zones – lighting on buoys or remove buoys.

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Issue Area	Description of Issue Area	Summary of Sub-Issues
	Two-stroke engines are generally louder and do not burn hydrocarbons as efficiently as four stroke engines.	
20.0 Oil and Gas Exploration and Development	Oil and gas activity was one of the major reasons for designation of all three of the north/central California National Marine Sanctuaries. In the past 10 years, the State of California has adopted legal restrictions to prohibit new oil and gas leasing and development. Temporary moratoria have been in place in federal waters since 1982. The most current directive (June 1998, Clinton administration) under the OCS Lands Act prevents any leasing of new areas for oil and gas exploration and development through June 30, 2012. The OCS presidential deferrals do not restrict development of already leased Federal areas. There are 36 remaining undeveloped active OCS leases south of the MBNMS off the coast in San Luis Obispo and Santa Barbara counties. Also of great concern related to oil and gas development, are the impacts on marine resources from an accidental oil spill. The most severe impacts would result from large oil spills usually associated will oil well blowouts, or tanker accidents. Oil spills could have a major impact on foraging birds, marine mammals, and fishes, as well as important habitat like kelp beds, wetlands and rocky shores. Tourism and coastal economies could also be devastated by a large oil spill. Tracts once considered for leasing also exist off of San Luis Obispo County reaching north almost to the southern boundary of the MBNMS. The threat of leasing or development of the existing leases has prompted many comments from individuals requesting a southern expansion of the MBNMS to reduce the possibility of further offshore oil and gas development.	20.1 Expand prohibition on oil and gas drilling and exploration to include slant drilling 20.2 Develop Strategies to influence oil and gas development beyond MBNMS, whose impacts could nonetheless affect MBNMS ***See Also Subissue 5.1 Moving MBNMS South***
21.0 Partnerships with Agencies	The MBNMS and the NMSP are committed to coordinating with other Federal, State and local agencies on a continuous ecosystem management process. The process is designed to ensure the long-term protection of the special resources of this region, while considering the demands of multi-use interests. As such, the existing management plan identifies strategies for cooperation among many agencies and institutions that historically may not have focused on the same goals. Overlapping jurisdictions, different agency mandates and limited resources necessitate the development of a relationship that brings together multiple agencies for the common purpose of ecosystem management. The MBNMS has used such techniques for its Advisory Council, its Water Quality Protection Program, Vessel Traffic Strategies, and resolution of kelp management. Many comments during the scoping process focused on how these shared agency roles can be improved. An area to test true shared agency-public responsibilities may be the Big Sur region, where many related local, state and federal agencies are revising management plans for similar, resource protection and use, missions.	21.1 Establish program for 'seamless management' between coastal agencies. 21.2 Update MOA with State Water Board. 21.3 Expand interaction with Coastal Commission on shared conservation and multiple use objectives. 21.4 Continue work with Big Sur Multi-Agency Council and Coast Highway Management Plan 21.5 Explore partnership beyond MBNMS, e.g., with Morro Bay National Estuary Program

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
		See also 4.0 Biodiversity Protection and Ecosystem Conservation for alternatives for marine reserves which include collaboration with agencies.
22.0 Partnerships with Community Groups	The MBNMS could not function in the many roles it undertakes without the support of its community partnerships. For instance, the MBNMS Sanctuary Advisory Council (SAC) is comprised of 40 agency and user group representatives as well as the public at large. Its advice is critical to understanding the needs of the local communities while protecting the Sanctuary's resources. The SAC relies on an additional 80 individuals on 4 working groups for the best information regarding Research, Education, Conservation, Business and Tourism. Each of these groups is comprised of representatives, who volunteer their time to help develop the Sanctuary's programs, products and viewpoints. 30 Hispanic serving institutions worked with MBNMS staff to develop the multicultural education plan. Partnerships with State and Regional Parks and private nonprofit groups have greatly enhanced the MBNMS's ability to share its mission.	22.1 Expand partnerships with businesses, tourism boards, and chambers of commerce
		22.2 Expand partnerships with many groups; e.g. Hearst Castle and Friends of the Elephant Seal, Santa Cruz Office of Education, Fitzgerald Marine Reserve.
		22.3 Hire volunteer coordinator to focus on improved interactions with existing volunteer efforts and expand efforts
23.0 Radioactive Waste	No comments specific to Monterey Bay NMS See Analysis of Gulf of the Farallones NMS	
24.0 Research	The opportunities for marine research within the Sanctuary are abundant, as seen by past research studies that have provided important baseline information about the area. The diversity of habitat types and communities provides a wealth of opportunities for conducting a variety of research programs. For example, the Monterey Canyon provides a unique opportunity to engage in deep- water marine research without extensive voyages offshore. Studies on the processes at the land-sea interface are also feasible due to the accessibility of extensive coastline. Finally, the marine research institutions within the area provide an exceptional resource to draw upon in furthering our understanding, and thus the management of, the Sanctuary's marine resources. Research is necessary to understand how the Sanctuary ecosystem functions and how humans impact it. This can be accomplished by improving our understanding of the Sanctuary environment, resources and qualities, resolving specific management problems, and coordinating and facilitating information flow between the various research institutions, agencies and organizations in the area. Research results can be used for making management decisions about resource protection and to develop and improve education programs for visitors and others interested in the Sanctuary.	24.1 Procure MBNMS research vessel and ROV
		24.2 Better research on critical species (e.g. krill, squid) or threatened species (e.g. whales, otters)
		24.3 Need research center in southern region of MBNMS
		24.4 increase public access to research results
		24.5 Enhance NOAA Vessel and Aircraft Capability
		24.6 Link coastal health to ocean productivity

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

Issue Area	Description of Issue Area	Summary of Sub-Issues
		24.7 Participate in regional cabled observatory development
		24.8 Quantify extractive human impacts.
		24.9 Quantify non-extractive human use impacts.
		24.10 Understand transport and sinks of pollution
		24.11 Update the MBNMS Site Characterization
		24.12 Coordinate regional research and monitoring
25.0 Sanctuary Advisory Council	The SAC, with its expertise and broad-based representation, offers advice to the Sanctuary Superintendent on: 1) protecting natural and cultural resources and identifying and evaluating emerging or critical issues involving Sanctuary use or resources; 2) identifying and realizing the Sanctuary's research objectives; 3) identifying and realizing educational opportunities to increase public knowledge and stewardship of the Sanctuary environment; and 4) assisting to develop informed constituency to increase awareness and understanding of the purpose and value of the Sanctuary and National Marine Sanctuary Program. The broad representation of the SAC ensures that the manager has an expanded information base on which to make management decisions. The MBNMS has had a SAC since 1993; GFNMS and CBNMS established theirs in 2002. The MBNMS Advisory Council is comprised of 40 agency and user group representatives and the public at large. The SAC relies on an additional 80 individuals on 4 working groups for the best information regarding Research, Education, Conservation, Business and Tourism. Each of these groups is comprised of representatives, who volunteer their time to help develop the Sanctuary's programs, products and viewpoints. Several issues of SAC governance, SAC seat selection, and its autonomy have been raised.	25.1 Add a recreational fishing seat
		25.2 Add seat for different commercial fishing gear types.
		25.3 Add military representative to SAC.
		25.4 Review SAC appointment process for SAC members.
		25.5 Review SAC charter and protocols to provide more autonomy.
		25.6 Remove SAC from NOAA, operate under separate authority.
		25.7 Require SAC members to disclose financial interests to determine conflicts of interest
26.0 Spill Response and	Emergency response within the Sanctuary ranges from small events associated with fuel and oil discharges, debris and habitat damage from vessel groundings, sinkings and plane crashes, to larger oil spills from offshore shipping traffic, sunken vessels or natural seeps where damages can span hundreds of	26.1 Improve response capabilities along Big Sur coast

TABLE 5: Analysis of Monterey Bay National Marine Sanctuary Issues

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Contingency Planning	miles of coastline. Interagency response coverage remains inadequate for some portions of MBNMS coastline, such as the Big Sur and Cambria area where rescue vessels and crews must travel long distances. In addition, MBNMS staff have not yet fully defined or held drills regarding their specific roles in the event of a large spill. The USCG and OSPR, with MBNMS participating to provide information and assess damage to resources, lead response to larger spills. Staff also participates on USCG's contingency planning committee to coordinate response to large spills. For smaller events and vessels, by default MBNMS has often assumed a lead role in ensuring that fuel and oil, debris and where possible, the vessel itself, is adequately removed to minimize damage. MBNMS has recently initiated an interagency subcommittee effort to improve prevention, coordinated interagency response and funding efforts related to small vessel sinkings and groundings.	***See Also Table 2 Cross-cutting Issues***
27.0 User Conflicts	The San Francisco Bay metropolitan area, home to more than 8 million people, influences the uses, health and three Sanctuaries. Located near some of California's most urbanized areas, the MBNMS has experiences an increase in the number of users and demands on the resources. This has increased human demands on the resources, including commercial and recreational fishing as well as wildlife viewing, research interests and educational opportunities. Because the area is large and includes adjacent rural and urban areas, management must be responsive and equipped to deal with a broad range of concerns. One tool National Marine Sanctuaries use to address user conflicts is zonal management. The MBNMS uses zonal management to avoid concentration of uses that could result in significant impacts on marine resources; to reduce conflict between uses; provide opportunities for scientific research; and/or to provide for the recovery of resources from degradation or other injury attributable to human uses. Other tools Sanctuaries use to address user conflicts: for uses not compatible with the Sanctuary's primary purpose of resource protection, the Sanctuary may promulgate regulations; and/or the Sanctuary may recommend voluntary rules of conduct for interacting with Sanctuary resources such as wildlife viewing guideline.	27.1 Complete an MBNMS visitor use survey to identify types of users ***See Also 19.0 Motorized Personal Watercraft and 30.0 Wildlife Disturbance.***
28.0 Vessel Traffic	Due to the high volume of large commercial vessel traffic and the risks and consequences of spills, vessel traffic was a major issue during the MBNMS designation in 1992. NOAA and the Coast Guard used a collaborative "key stakeholder" process to develop recommendations to improve protection of the MBNMS and allow for safe and efficient vessel transportation. These strategies, much of which were approved internationally, move shipping lanes 12 to 20 miles offshore, and keep most tanker traffic out of the Sanctuary (50 nautical miles offshore). Certain individuals commented on this issue during scoping with recommendations to move the vessel traffic lanes further offshore and thereby further reducing the threat potential.	28.1Develop enforcement and monitoring program for vessel traffic program 28.2. Remove oil tanker traffic from sanctuary ***See also26.0 Spill Response and Contingency Planning***

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Issue Area	Description of Issue Area	Summary of Sub-Issues
29.0 Water Quality	***Nonpoint Source Pollution*** Coastal watersheds immediately adjacent to MBNMS cover over 7000 square miles of land with a mix of land uses including major urban areas, rural communities, agricultural land, and pockets of industrial areas. As rainfall or irrigation water in these watersheds moves downstream, it picks up a variety of contaminants. Offshore areas of the Sanctuary are in relatively good condition, but nearshore coastal areas, harbors, lagoons, estuaries and tributaries show a number of problems including elevated levels of coliform bacteria, detergents, oils, nitrates, sediments, and persistent pesticides such as DDT and toxaphene. These contaminants can have a variety of biological impacts including bioaccumulation, reduced recruitment of anadramous species, algal blooms, transfer of human pathogens and interference with recreational uses of the sanctuary due to beach closures. The Sanctuary's Water Quality Protection Program has developed multistakeholder plans for urban runoff, marinas and boating, agriculture and rural lands, and water quality monitoring. Implementation of all of these plans have begun, but most of the recommendations are not yet implemented due to lack of funding and staffing for MBNMS and its partners. In addition, recent problems such as recurring beach closures which are in part are probably due to nonpoint sources of coliform pollution have not yet been adequately addressed in the urban runoff and water quality monitoring efforts. ***Point Source Pollution*** Point sources of pollution are those in which a single discharge point is evident, and they include sewage spills and discharges, desalination plants, and industrial discharges such as power plants. Sewage spills have become more frequent in recent years, in part due to cracks and clogging of aging pipelines beneath many of the region's cities and small communities. These spills, along with nonpoint sources of coliform, have contributed to more frequent beach closures which reduce recreational use. Pathogens from sewage have also been implicated in sea otter diseases and mortality patterns. In addition, there are currently 15 desalination plants that are existing or in some stage of planning within MBNMS, with an increasing trend towards the development of small independent plants for private developments. Discharges from these plants have potential impacts due to elevated salinity and metal levels, toxic contaminants associated with cleaning and maintenance, and construction impacts from pipelines. MBNMS has previously reviewed these plants on a case-by-case basis to recommend measures to reduce impacts, but has recently initiated an interagency effort to evaluate the issue and develop regional guidelines.	29.1 Fully implement all elements of existing water quality plans produced by Water Quality Protection Program and integrate WQPP into management plan 29.2 Develop and implement action plans for coliform contamination / beach closures 29.3 Fund DNA pollutant source tracing for coliform 29.4 Increase beach closure notification 29.5 Prohibit 2-stroke engines in sanctuary 29.6 Develop and implement regional desalination policy including prohibitions on private desalination facilities ***See also Issue 16.0 Marine Discharge and Debris***
30.0 Wildlife Disturbance	The Sanctuaries provide many opportunities for observation of nature, including whale watching, bird watching, and pinniped pupping and haulout activity. Partyboats are used for nature observation tours. Rocky shorelines provide pedestrians opportunities to view the flora and fauna associated with the habitat. With the multitude of opportunities for observation come the potential for wildlife disturbance which may	30.1 Review shark attraction regulation to restrict permit issuance and implement guidelines for interaction.

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	result in flushing birds from their nesting sites, pinnipeds abandoning pups, potential harassment or even death. Previously in the MBNMS ecotourism operations included white shark viewing with the aid of chumming and other attraction methods. MBNMS adopted prohibitions for white shark attraction.. Potential impacts to seabird nesting from low-flying aircraft are addressed with a prohibition on low flying (under 1,000 feet) aircraft in certain zones with sensitive wildlife. Some implementation problems have occurred since the overflight regulations are not noted on FAA charts.	30.2 Review overflight regulations to address consistency with FAA charts and guidelines, increase outreach to pilots and to review potential environmental impacts.
		30.3 Need wildlife viewing guidelines, and enforcement and education effort
		30.4 Research, and if necessary develop action plan, to nonextractive user impacts (e.g. wildlife viewing, kayaking, diving, research)
		See also 19.0 Motorized Personal Watercraft